Contents of Volume 52

January 1, Number 1

1 **Relationship of Prediagnostic Serum Levels of Dehydroepiandrosterone and Dehydroepiandrosterone Sulfate to the Risk of Developing Premenopausal Breast Cancer.** Kathy J. Helzlsouer, Gary B. Gordon, Anthony J. Alberg, Trudy L. Bush, and George W. Comstock.

5 **Activation of the *gadd153* Promoter by Genotoxic Agents: A Rapid and Specific Response to DNA Damage.** Jennifer D. Luethy and Nikki J. Holbrook.

11 **Abundance of the Primary Transcript and Its Processed Product of Growth-related Genes in Normal and Leukemic Cells during Proliferation and Differentiation.** Sergio Ferrari, Enrico Tagliafico, Rossella Manfredini, Alexis Grande, Elena Rossi, Patrizia Zucchini, Giuseppe Torelli, and Umberto Torelli.

17 **Energy-dependent Processes Involved in Reduced Drug Accumulation in Multidrug-resistant Human Lung Cancer Cell Lines without P-Glycoprotein Expression.** Carolina H. M. Versantvoort, Henricus J. Broxterman, Herbert M. Pinedo, Elisabeth G. E. de Vries, Nicole Feller, Catharina M. Kuiper, and Jan Lankelma.

24 **Neuropeptide Signal Transduction in Lung Cancer: Clinical Implications of Bradykinin Sensitivity and Overall Heterogeneity.** Paul A. Bunn, Jr., Daniel Chan, David G. Dienhart, Russell Tolley, Maureen Tagawa, and Philip B. Jewett.

32 **Expression of Human *O*^{6}-Methylguanine-DNA Methyltransferase in a DNA Excision Repair-deficient Chinese Hamster Ovary Cell Line and Its Response to Certain Alkylating Agents.** Zining Wu, Chung-Leung Chan, Alan Eastman, and Edward Bresnick.

36 **Intracellular Metabolism of 5-Formyl Tetrahydrofolate in Human Breast and Colon Cell Lines.** Donna M. Boarman and Carmen J. Allegra.

45 **Molecular Dosimetry of Urinary Aflatoxin-DNA Adducts in People Living in Guangxi Autonomous Region, People's Republic of China.** John D. Groopman, Zhu Jiaqi, Paul R. Donahue, Anthony Pikul, Zhang Lisheng, Chen Jun-shi, and Gerald N. Wogan.

53 **High Levels of Enhanced Reactivation of Herpes Simplex Virus in Skin Fibroblasts from Various Hereditary Cancer-prone Syndromes.** Peter J. Abrahams, Ada Houweling, and Alex J. van der Eb.

58 **Nitroreductases and Glutathione Transferases That Act on 4-Nitroquinoline 1-Oxide and Their Differential Induction by Butylated Hydroxyanisole in Mice.** J. Steven Stanley, J. Lyndal York, and Ann M. Benson.

64 **Use of Adaptive Control with Feedback to Individualize Suramin Dosing.** Howard I. Scher, Duncan I. Jodrell, Jacqueline M. Iversen, Tracy Curley, William Tong, Merrill J. Egorin, and Alan Forrest.

71 **Selective Depletion of Tumor ATP by 2-Deoxyglucose and Insulin, Detected by ^{31}P Magnetic Resonance Spectroscopy.** Gregory S. Karczmar, Jeffrey M. Arbeit, B. James Toy, Anne Speder, and Michael W. Weiner.

77 **Analysis of the *Pvu*II Restriction Fragment-length Polymorphism and Exon Structure of the Estrogen Receptor Gene in Breast Cancer and Peripheral Blood.** Lauren Yaich, William D. Dupont, Douglas R. Cavener, and Fritz F. Parl.

84 **Human Colon Adenocarcinoma Cell Lines Display Infrared Spectroscopic Features of Malignant Colon Tissues.** Basil Rigas and Patrick T. T. Wong.

89 **Localization of Radiolabeled Antimyeloid Antibodies in a Human Acute Leukemia Xenograft Tumor Model.** Richard H. C. van der Jagt, Christopher C. Badger, Frederick R. Appelbaum, Oliver W. Press, Dana C. Matthews, Janet F. Eary, Kenneth A. Krohn, and Irwin D. Bernstein.

95 **Identification of the Major Protein Components in Breast Secretions from Women with Benign and Malignant Breast Diseases.** Luis M. Sánchez, Francisco Vizoso, Irene Diez-Itza, and Carlos López-Otín.

101 **Preclinical Evaluation of Bryostatin as an Anticancer Agent against Several Murine Tumor Cell Lines: *In Vitro versus in Vivo* Activity.** Ronald L. Hornung, John W. Pearson, Margaret Beckwith, and Dan L. Longo.

108 **Quantitation of Thymidylate Synthase, Dihydrofolate Reductase, and DT-Diaphorase Gene Expression in Human Tumors Using the Polymerase Chain Reaction.** Tetsuro Horikoshi, Kathleen D. Danenberg, Thomas H. W. Stadlbauer, Matthias Volkenandt, Luke C. C. Shea, Karl Aigner, Bengt Gustavsson, Lawrence Leichman, Roland Frösing, Margaret Ray, Neil W. Gibson, C. Paul Spears, and Peter V. Danenberg.

117 **Interaction of Photodynamic Treatment and Either Hyperthermia or Ionizing Radiation and of Ionizing Radiation and Hyperthermia with Respect to Cell Killing of L929 Fibroblasts, Chinese Hamster Ovary Cells, and T24 Human Bladder Carcinoma Cells.** Carla Prinsze, Louis C. Penning, Tom M. A. R. Dubbelman, and John VanSteveninck.

121 **Immunotherapy of Human Glioma Xenografts with Unlabeled, ^{131}I-, or ^{125}I-labeled Monoclonal Antibody 425 to Epidermal Growth Factor Receptor.** Hans Bender, Hiroshi Takahashi, Koji Adachi, Paul Belser, Shaohong Liang, Marie Prewett, Martin Schrappe, Arne Sutter, Ulrich Rodeck, and Dorothee Herlyn.

127 **Immunoconjugates Containing Novel Maytansinoids: Promising Anticancer Drugs.** Ravi V. J. Chari, Bridget A. Martell, Jonathan L. Gross, Sherrilyn B. Cook, Sudhir A. Shah, Walter A. Blattler, Sara J. McKenzie, and Victor S. Goldmacher.

132 **Antitumor Effect of 2′-Deoxy-5-fluorouridine Conjugates against a Murine Thymoma and Colon Carcinoma Xenografts.** Kenia G. Krauer, Ian F. C. McKenzie, and Geoffrey A. Pietersz.

138 **Melphalan Penetration of the Blood-Brain Barrier via the Neutral Amino Acid Transporter in Tumor-bearing Brain.** Eain M. Cornford, Deborah Young, James W. Paxton, Graeme J. Finlay, William R. Wilson, and William M. Pardridge.

144 **Intracellular Acidification Is Associated with Enhanced Morphological Transformation in Syrian Hamster Embryo Cells.** Robert A. LeBoeuf, Peiyuan Lin, Gary Kerckaert, and Eric Gruenstein.

149 **Persistence of Platinum-Ammine-DNA Adducts in Gonads and Kidneys of Rats and Multiple Tissues from Cancer Patients.** Miriam C. Poirier, Eddie Reed, Charles L. Litterst, David Katz, and Shalina Gupta-Burt.

154 **Effect of ω3 and ω6 Fatty Acids on Transformation of Cultured Cells by Irradiation and Transfection.** Mareyuki Takahashi, Marek Przetakiewicz, Augustine Ong, Carmia Borek, and John M. Lowenstein.

163 **Enhanced Levels of Annexins in Pancreatic Carcinoma Cells of Syrian Hamsters and Their Intrapancreatic Allografts.** Krishnanand D. Kumble, Masahiko Hirota, Parviz M. Pour, and Jamboor K. Vishwanatha.

168 **Morphological Reversion of *sis*-transformed NIH3T3 Cells by Trichostatin A.** Kenji Sugita, Kenzo Koizumi, and Hiroshi Yoshida.

173 ***ras* Transformation of Simian Virus 40-immortalized Rat Hepatocytes: An *in Vitro* Model of Hepatocarcinogenesis.** Xian-Jun Fang, Michele Flowers, Aimand Keating, Ross Cameron, and Morris Sherman.

181 **Characterization of the Antigen (CAK1) Recognized by Monoclonal Antibody K1 Present on Ovarian Cancers and Normal Mesothelium.** Kai Chang, Lee H. Pai, Janendra K. Batra, Ira Pastan, and Mark C. Willingham.

187 **Increased Sensitivity of Human Keratinocytes Immortalized by Human Papillomavirus Type 16 DNA to Growth Control by Retinoids.** Lucia Pirisi, Ayse Batova, G. Ronald Jenkins, John R. Hodam, and Kim E. Creek.

194 **Comparative Study of Doxorubicin, Mitoxantrone, and Epirubicin in Combination with ICRF-187 (ADR-529) in a Chronic Cardiotoxicity Animal Model.** Patricia M. Alderton, Janet Gross, and Michael D. Green.

202 **Specific Binding to Protein Kinase C by Ingenol and Its Induction of Biological Responses.** Clare M. Hasler, Geza Acs, and Peter M. Blumberg.

209 **Relative Activity of Structural Analogues of Amsacrine against Human Leukemia Cell Lines Containing Amsacrine-sensitive or -resistant Forms of Topoisomerase II: Use of Computer Simulations in New Drug Development.** Leonard A. Zwelling, Michael J. Mitchell, Patricia Satitpunwaycha, Janice Mayes, Elizabeth Altschuler, Michael Hinds, and Bruce C. Baguley.

Advances in Brief

218 **Altered *p53* Gene Structure and Expression in Human Epithelial Cells after Exposure to Nickel.** L. Miehle, R. A. Metcalf, D. Ryberg, W. P. Bennett, C. C. Harris, and A. Haugen.

222 **Suppression of Acute Lymphoblastic Leukemia by the Human Wild-Type *p53* Gene.** Jian Cheng, Jiing-Kuan Yee, Jo Yeargin, Theodore Friedmann, and Martin Haas.

227 **Antitumor Activity of Basic Fibroblast Growth Factor-Saporin Mitotoxin *in Vitro* and *in Vivo*.** Julie G. Beitz, Pamela Davel, Jeffrey W. Clark, Junji Kato, Maria Medina, A. Raymond Frackleton, Jr., Douglas A. Lappi, Andrew Baird, and Paul Calabresi.

231 **Topoisomerase IIα and Topoisomerase IIβ Genes: Characterization and Mapping to Human Chromosomes 17 and 3, Respectively.** K. B. Tan, Thomas E. Dorman, Kathleen M. Falls, Thomas D. Y. Chung, Christopher K. Mirabelli, Stanley T. Crooke, and Jen-ti Mao.

235 **Role of Tamoxifen in the Induction of Hormone-independent Rat Mammary Tumors.** Karin C. Fendl and Stephen J. Zimniski.

238 **Announcements**
Eighty-Third Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Future Annual Meetings of the AACR
Calendar of Events

240 **Instructions for Authors**

247 **Author Index**

January 15, Number 2

Perspectives in Cancer Research

249 **The Origin of Point Mutations in Human Tumor Cells.** Bernard S. Strauss.

254 **Cigarette Smoking and Cancers of the Renal Pelvis and Ureter.** Joseph K. McLaughlin, Debra T. Silverman, Ann W. Hsing, Ronald K. Ross, Janet B. Schoenberg, Mimi C. Yu, Annette Stemhagen, Charles F. Lynch, William J. Blot, and Joseph F. Fraumeni, Jr.

258 **Proliferation-linked Regulation of Type II IMP Dehydrogenase Gene in Human Normal Lymphocytes and HL-60 Leukemic Cells.** Masami Nagai, Yutaka Natsumeda, and George Weber.

262 **The Effects of Interleukin 2 and α-Interferon Administration on Hepatic Drug Metabolism in Mice.** Sherry S. Ansher, Raj K. Puri, Walter C. Thompson, and William H. Habig.

267 **Molecular Dosimetry in Rat Urine of Aflatoxin-*N*^{7}-guanine and Other Aflatoxin Metabolites by Multiple Monoclonal Antibody Affinity Chromatography and Immunoaffinity/High Performance Liquid Chromatography.** John D. Groopman, Julia A. Hasler, Laura J. Trudel, Anthony Pikul, Paul R. Donahue, and Gerald N. Wogan.

275 **Inhibition of Colon and Breast Carcinoma Cell Growth by Interleukin-4.** Masakazu Toi, Roy Bicknell, and Adrian L. Harris.

280 **Growth Kinetics of Microscopic Hepatocellular Neoplasms in Carcinogen-resistant and Carcinogen-responsive Strains of Mice.** Thomas D. Pugh and Stanley Goldfarb.

285 **Loss of Heterozygosity at the Human RAP1A/*Krev*-1 Locus Is a Rare Event in Colorectal Tumors.** Joanne Young, Jeffrey Searle, Russell Stitz, Alistair Cowen, Michael Ward, and Georgia Chenevix-Trench.

290 **17β-Hydroxysteroid Dehydrogenase Gene Expression in Human Breast Cancer Cells: Regulation of Expression by a Progestin.** Matti Poutanen, Bruno Moncharmont, and Reijo Vihko.

295 **Growth Inhibition of Transforming Growth Factor β on Human Gastric Carcinoma Cells: Receptor and Postreceptor Signaling.** Masanori Ito, Wataru Yasui, Eikai Kyo, Hiroshi Yokozaki, Hirofumi Nakayama, Hisao Ito, and Eiichi Tahara.

301 **Characterization of Platelet-derived Growth Factor and Platelet-derived Growth Factor Receptor Expression in Asbestos-induced Rat Mesothelioma.** Cheryl Walker, Edilberto Bermudez, Wendy Stewart, James Bonner, Christopher J. Molloy, and Jeffrey Everitt.

307 **A General Transcription Initiation Factor, Human Transcription Factor IID, Overexpressed in Human Lung and Breast Carcinoma and Rapidly Induced with Serum Stimulation.** Chieki Wada, Kiyoshi Kasai, Toru Kameya, and Hideki Ohtani.

314 **Complementary DNA Cloning, Messenger RNA Expression, and Induction of α-Class Gluthathione *S*-Transferases in Mouse Tissues.** Timo M. Buetler and David L. Eaton.

319 **Isolation and Characterization of a 1-β-D-Arabinofuranosylcytosine-resistant Chinese Hamster Ovary Cell Mutant That Is Also X-Ray Sensitive and Is Noncomplementary with Ataxia Telangiectasia Cells.** Gloria A. Preston, Helen S. Payne, and R. Julian Preston.

328 **Mechanism of Cross-Resistance to a Camptothecin Analogue (CPT-11) in a Human Ovarian Cancer Cell Line Selected by Cisplatin.** Shigeki Niimi, Kazuhiko Nakagawa, Yoshikazu Sugimoto, Kazuto Nishio, Yasuhiro Fujiwara, Shiro Yokoyama, Yoshiteru Terashima, and Nagahiro Saijo.

334 **Inhibition of DNA Synthesis and Growth in Human Breast Stromal Cells by Bradykinin: Evidence for Independent Roles of B_1 and B_2 Receptors in the Respective Control of Cell Growth and Phospholipid Hydrolysis.** Kirti V. Patel and Michael P. Schrey.

341 **Transforming Growth Factor-α Acts as an Autocrine Growth Factor in Ovarian Carcinoma Cell Lines.** Kurt Stromberg, Theodore J. Collins IV, Alfred W. Gordon, Carolyn L. Jackson, and Gibbes R. Johnson.

348 **Molecular and Cellular Characterization of Human Renal Cell Carcinoma Cell Lines.** P. Anglard, E. Trahan, S. Liu, F. Latif, M. J. Merino, M. I. Lerman, B. Zbar, and W. M. Linehan.

357 **A Quantitative Analysis of Tumor-specific Monoclonal Antibody Uptake by Human Melanoma Xenografts: Effects of Antibody Immunological Properties and Tumor Antigen Expression Levels.** Ty R. Shockley, Ke Lin, Cynthia Sung, Janice A. Nagy, Ronald G. Tompkins, Robert L. Dedrick, Harold F. Dvorak, and Martin L. Yarmush.

367 **Spatial Distribution of Tumor-specific Monoclonal Antibodies in Human Melanoma Xenografts.** Ty R. Shockley, Ke Lin, Janice A. Nagy, Ronald G. Tompkins, Martin L. Yarmush, and Harold F. Dvorak.

CONTENTS OF VOLUME 52

377 **Predicted and Observed Effects of Antibody Affinity and Antigen Density on Monoclonal Antibody Uptake in Solid Tumors.** Cynthia Sung, Ty R. Shockley, Paul F. Morrison, Harold F. Dvorak, Martin L. Yarmush, and Robert L. Dedrick.

385 ***In Vitro* Apoptosis in the Human Hepatoma Cell Line Induced by Transforming Growth Factor β_1.** Jen-Kou Lin and Chen-Kung Chou.

389 **Eosinophils, Tissue Eosinophilia, and Eosinophil-derived Transforming Growth Factor α in Hamster Oral Carcinogenesis.** Mohammad Ghiabi, George T. Gallagher, and David T. W. Wong.

394 **Human Xenograft-Nude Mouse Model of Adoptive Immunotherapy with Human Melanoma-specific Cytotoxic T-Cells.** Nancy J. Crowley, Carol E. Vervaert, and Hilliard F. Seigler.

400 **Anticancer Effects of Free Polyunsaturated Fatty Acids in an Oily Lymphographic Agent following Intrahepatic Arterial Administration to a Rabbit Bearing VX-2 Tumor.** Yoshiki Hayashi, Shoji Fukushima, Shuichi Kishimoto, Takeo Kawaguchi, Mitsuhiro Numata, Yoshihiro Isoda, Jiro Hirano, and Masahiro Nakano.

406 **Establishment of a Human t(4;11) Leukemia in Severe Combined Immunodeficient Mice and Successful Treatment Using Anti-CD19 (B43)-Pokeweed Antiviral Protein Immunotoxin.** Burkhard Jansen, Fatih M. Uckun, Waclaw B. Jaszcz, and John H. Kersey.

413 **Protection from 1-β-D-Arabinofuranosylcytosine-induced Alopecia by Epidermal Growth Factor and Fibroblast Growth Factor in the Rat Model.** Joaquin J. Jimenez and Adel A. Yunis.

416 **Glycosphingolipids of Various Human Ovarian Tumors: A Significantly High Expression of I^3SO_3GalCer and Lewis Antigen in Mucinous Cystadenocarcinoma.** Kazushige Kiguchi, Kiyoshi Takamatsu, Jun Tanaka, Shiro Nozawa, Masao Iwamori, and Yoshitaka Nagai.

422 **Detection of Nuclear Matrix Proteins in Serum from Cancer Patients.** Thomas E. Miller, Lee A. Beausang, Lisa F. Winchell, and Graham P. Lidgard.

428 **Increased Growth of NIH/3T3 Cells by Transfection with Human p120 Complementary DNA and Inhibition by a p120 Antisense Construct.** Laszlo Perlaky, Benigno C. Valdez, Rose K. Busch, Robert G. Larson, Sissy M. Jhiang, Wei Wei Zhang, Michael Brattain, and Harris Busch.

437 **The NZB Mouse as a Model for Chronic Lymphocytic Leukemia.** Joy A. Phillips, Kumudini Mehta, Cesar Fernandez, and Elizabeth S. Ravechè.

444 **Prolonged Decrease of Serum Calcium Concentration by Murine γ-Interferon in Hypercalcemic, Human Tumor (EC-GI)-bearing Nude Mice.** Kanji Sato, Tomoko Satoh, Kazuo Shizume, Yukiko Yamakawa, Yoshiyuki Ono, Hiroshi Demura, Takuhiko Akatsu, Naoyuki Takahashi, and Tatsuo Suda.

450 **Pheochromocytomas and C-Cell Thyroid Neoplasms in Transgenic c-*mos* Mice: A Model for the Human Multiple Endocrine Neoplasia Type 2 Syndrome.** Nicholas Schulz, Friedrich Propst, Michael P. Rosenberg, R. Ilona Linnoila, Richard S. Paules, Robert Kovatch, Yuko Ogiso, and George Vande Woude.

456 **Leukoregulin and γ-Interferon Inhibit Human Papillomavirus Type 16 Gene Transcription in Human Papillomavirus-immortalized Human Cervical Cells.** Craig D. Woodworth, Ulrike Lichti, Scott Simpson, Charles H. Evans, and Joseph A. DiPaolo.

464 **Neutrophil Chemotactic Factors Produced by a Cell Line from Thyroid Carcinoma.** Minoru Yoshida, Hiromitsu Matsuzaki, Kenmei Sakata, Motohiro Takeya, Kazuharu Kato, Seiichi Mizushima, Makoto Kawakita, and Kiyoshi Takatsuki.

Advances in Brief

470 **Different Effects of Staurosporine, an Inhibitor of Protein Kinases, on the Cell Cycle and Chromatin Structure of Normal and Leukemic Lymphocytes.** Silvia Bruno, Barbara Ardelt, Janusz S. Skierski, Frank Traganos, and Zbigniew Darzynkiewicz.

474 **Rhabdomyosarcoma Spheroids with Central Proliferation and Differentiation.** Ulrich Karbach, Claus-Dieter Gerharz, Karlfried Groebe, Helmut E. Gabbert, and Wolfgang Mueller-Klieser.

478 **Effect of Protein Tyrosine Phosphatase 1B Expression on Transformation by the Human *neu* Oncogene.** Sheryl Brown-Shimer, Karen A. Johnson, David E. Hill, and Arthur M. Bruskin.

483 **Inhibition of Estrogen Receptor Action by a Naturally Occurring Variant in Human Breast Tumors.** Suzanne A. W. Fuqua, Saundra D. Fitzgerald, D. Craig Allred, Richard M. Elledge, Zafar Nawaz, Donald P. McDonnell, Bert W. O'Malley, Geoffrey L. Greene, and William L. McGuire.

487 **Interstitial Fluid Pressure in Solid Tumors following Hyperthermia: Possible Correlation with Therapeutic Response.** Michael Leunig, Alwin E. Goetz, Marc Dellian, Gerd Zetterer, Fernando Gamarra, Rakesh K. Jain, and Konrad Messmer.

491 **Involvement of *BCL-2* in Glucocorticoid-induced Apoptosis of Human Pre-B-Leukemias.** Emad S. Alnemri, Teresa F. Fernandes, Subrata Haldar, Carlo M. Croce, and Gerald Litwack.

496 **Announcements**
Eighty-Third Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Future Annual Meetings of the AACR
General Motors Cancer Research Foundation Seeks Nominations for Annual Journalism Prizes
Recent Deaths
Calendar of Events

498 **Errata**
Z-F. Chang *et al.*, *51*: 4724–4728, 1991.
M. Okoshi *et al.*, *51*: 6019–6024, 1991.

499 **Author Index**

February 1, Number 3

PERSPECTIVES IN CANCER RESEARCH

501 **Many Growth Factors May Not Be Growth Factors.** Richmond T. Prehn.

508 **Prolonged Inhibition by X-Rays of DNA Synthesis in Cells Obtained by Transformation of Primary Rat Embryo Fibroblasts with Oncogenes H-*ras* and v-*myc*.** Ya Wang and George Iliakis.

515 **The Human Prostatic Carcinoma Cell Line LNCaP Expresses Biologically Active, Specific Receptors for 1α,25-Dihydroxyvitamin D_3.** Gary J. Miller, Gary E. Stapleton, Janet A. Ferrara, M. Scott Lucia, Stephen Pfister, Tammy E. Hedlund, and Prakash Upadhya.

521 **Pediatric Phase I Trial, Pharmacokinetic Study, and Limited Sampling Strategy for Piritrexim Administered on a Low-Dose, Intermittent Schedule.** Peter C. Adamson, Frank M. Balis, James Miser, Carola Arndt, Robert J. Wells, Andrea Gillespie, Leslie Aronson, John S. Penta, Neil J. Clendeninn, and David G. Poplack.

525 **Overexpression of Human Topoisomerase I in Baby Hamster Kidney Cells: Hypersensitivity of Clonal Isolates to Camptothecin.** Knut R. Madden and James J. Champoux.

533 **Cellular Elimination of 2′,2′-Difluorodeoxycytidine 5′-Triphosphate: A Mechanism of Self-Potentiation.** Volker Heinemann, Yi-Zheng Xu, Sherri Chubb, Alina Sen, Larry W. Hertel, Gerald B. Grindey, and William Plunkett.

540 **Platinum Anticancer Drugs Modulate P-450 mRNA Levels and Differentially Alter Hepatic Drug and Steroid Hormone Metabolism in Male and Female Rats.** Gerald A. LeBlanc, Scott S. Sundseth, Georg F. Weber, and David J. Waxman.

548 **Activation and Growth of Murine Tumor-specific T-Cells Which Have *in Vivo* Activity with Bryostatin 1.** Todd M. Tuttle, Thomas H. Inge, Kevin P. Bethke, Carl W. McCrady, George R. Pettit, and Harry D. Bear.

554 **Endothelin-1 Gene Expression and Biosynthesis in Human Endometrial HEC-1A Cancer Cells.** Katherine Economos, Paul C. MacDonald, and M. Linette Casey.

558 **Mutation(s) of the Thymidylate Synthase Gene of Human Adenocarcinoma Cells Causes a Thymidylate Synthase-negative Phenotype That Can Be Attenuated by Exogenous Folates.** Peter J. Houghton, Atiqur Rahman, Cindy L. Will, Bruce J. Dolnick, and Janet A. Houghton.

566 **Surface Immunoglobulin-mediated Signal Transduction Involves Rapid Phosphorylation and Activation of the Protooncogene Product *Raf-1* in Human B-Cells.** Toshiharu Tamaki, Yuzuru Kanakura, Akira Kuriu, Hirokazu Ikeda, Hideki Mitsui, Hirosuke Yagura, Itaru Matsumura, Brian Druker, James D. Griffin, Yoshio Kanayama, and Takeshi Yonezawa.

571 **Basic Fibroblast Growth Factor in Human Prostate Cancer Cells.** Takahisa Nakamoto, Chawnshang Chang, Ankun Li, and Gerald W. Chodak.

578 **Hormone Levels in Vegetarian and Nonvegetarian Teenage Girls: Potential Implications for Breast Cancer Risk.** Victoria W. Persky, Robert T. Chatterton, Linda V. Van Horn, Mark D. Grant, Patricia Langenberg, and Joy Marvin.

584 **Blood Flow in Six Human Melanoma Xenograft Lines with Different Growth Characteristics.** Heidi Lyng, Arne Skretting, and Einar K. Rofstad.

593 **Heterogeneity of Progesterone Receptor Content and Remodeling by Tamoxifen Characterize Subpopulations of Cultured Human Breast Cancer Cells: Analysis by Quantitative Dual Parameter Flow Cytometry.** Mark L. Graham II, Jeffrey A. Smith, Phillip B. Jewett, and Kathryn B. Horwitz.

603 **Clinical Pharmacokinetics of the Anthrapyrazole CI-941: Factors Compromising the Implementation of a Pharmacokinetically Guided Dose Escalation Scheme.** M. A. Graham, D. R. Newell, B. J. Foster, L. A. Gumbrell, K. E. Jenns, and A. H. Calvert.

610 **Novel Compounds Inhibit Estrogen Formation and Action.** Claude Labrie, Céline Martel, Jean-Marc Dufour, Charles Lévesque, Yves Mérand, and Fernand Labrie.

616 **Examination of the Oncogenic Potential of a Tumor-associated Antigen, Intestinal Alkaline Phosphatase, in HeLa × Fibroblast Cell Hybrids.** Kathryn M. Latham and Eric J. Stanbridge.

623 **Blocking Effect of Human Serum but not of Cerebrospinal Fluid on Ricin A Chain Immunotoxin Potentiation by Monensin or Carrier Protein-Monensin Conjugates.** Carola Cundiani, Antonia Franceschi, Roberto Chignola, Marcella Pasti, Cristina Anselmi, Giuseppina Benoni, Giuseppe Tridente, and Marco Colombatti.

631 **The Chlorinated Pesticide Mirex Is a Novel Nonphorbol Ester-type Tumor Promoter in Mouse Skin.** Glenda J. Moser, Sharon A. Meyer, and Robert C. Smart.

637 **Improved Delivery of Radiolabeled Anti-B1 Monoclonal Antibody to Raji Lymphoma Xenografts by Predosing with Unlabeled Anti-B1 Monoclonal Antibody.** Donald J. Buchsbaum, Richard L. Wahl, Stephan D. Glenn, Daniel P. Normolle, and Mark S. Kaminski.

643 **Disruption of the *APC* Gene by a Retrotransposal Insertion of L1 Sequence in a Colon Cancer.** Yoshio Miki, Isamu Nishisho, Akira Horii, Yasuo Miyoshi, Joji Utsunomiya, Kenneth W. Kinzler, Bert Vogelstein, and Yusuke Nakamura.

646 ***In Vivo* Targeting of OV-TL 3 Immunoliposomes to Ascitic Ovarian Carcinoma Cells (OVCAR-3) in Athymic Nude Mice.** Ulla K. Nässander, Peter A. Steerenberg, Hilde Poppe, Gert Storm, Lambert G. Poels, Wim H. De Jong, and Daan J. A. Crommelin.

654 **Failure of *RB1* to Reverse the Malignant Phenotype of Human Tumor Cell Lines.** Michelle M. Muncaster, Brenda L. Cohen, Robert A. Phillips, and Brenda L. Gallie.

662 **The Effect of Dietary Fat on the Rapid Development of Mammary Tumors Induced by 7,12-Dimethylbenz(a)anthracene in SENCAR Mice.** Susan M. Fischer, Claudio J. Conti, Mary Locniskar, Martha A. Belury, Regina E. Maldve, Marilyn L. Lee, Julius Leyton, Thomas J. Slaga, and David H. Bechtel.

667 **Individual Transforming Events in Long-Term Cell Culture of NIH 3T3 Cells as Products of Epigenetic Induction.** Bryan J. Ellison and Harry Rubin.

674 ***p53* Mutation and Loss of Heterozygosity on Chromosomes 17 and 10 during Human Astrocytoma Progression.** Dan Fults, Douglas Brockmeyer, Micam W. Tullous, Carolyn A. Pedone, and Richard M. Cawthon.

680 **Expression of Simple Epithelial Cytokeratins in Mouse Epidermal Keratinocytes Harboring Harvey *ras* Gene Alterations.** Margarita Diaz-Guerra, Sheena Haddow, Cristina Bauluz, Jose Luis Jorcano, Amparo Cano, Allan Balmain, and Miguel Quintanilla.

688 **Neoplastic Progression by EJ *ras* at Different Steps of Transformation *in Vitro* of Human Uroepithelial Cells.** Carol I. Pratt, Chinghai Kao, Shi-Q. Wu, Kennedy W. Gilchrist, Ryoichi Oyasu, and Catherine A. Reznikoff.

696 **Reduced Growth Rate of Dimethylhydrazine-induced Colon Tumors in Rats.** Akira Tsunoda, Miki Shibusawa, Yuko Tsunoda, Naokuni Yasuda, and Tadashi Koike.

701 **Inhibition of Invasion and Metastasis in Cells Transfected with an Inhibitor of Metalloproteinases.** Yves A. DeClerck, Norma Perez, Hiroyuki Shimada, Thomas C. Boone, Keith E. Langley, and Shirley M. Taylor.

709 **Synthesis and Evaluation of Fluoromycin: A Novel Fluorescence-labeled Derivative of Talisomycin S_{10b}.** Jehangir S. Mistry, Jitesh P. Jani, Geoffrey Morris, Ratnakar B. Mujumdar, Ian J. Reynolds, Said M. Sebti, and John S. Lazo.

719 **Measurement of Thymidine Replacement in Patients with High Grade Gliomas, Head and Neck Tumors, and High Grade Sarcomas after Continuous Intravenous Infusions of 5-Iododeoxyuridine.** John A. Cook, Joseph Glass, Robert Lebovics, Hunt Bobo, Harvey Pass, Thomas F. DeLaney, Edward H. Oldfield, James B. Mitchell, Eli Glatstein, and Thomas E. Goffman.

726 **Recombinant Interleukin-2 and Lymphokine-activated Killer Cell Treatment of Advanced Bladder Cancer: Clinical Results and Immunological Effects.** Gregers Gautier Hermann, Poul Flemming Geertsen, Hans von der Maase, Kenneth Steven, Claus Andersen, Tage Hald, and Jesper Zeuthen.

ADVANCES IN BRIEF

734 ***p53* Mutations in Non-Small Cell Lung Cancer in Japan: Association between Mutations and Smoking.** Hiroko Suzuki, Takashi Takahashi, Tetsuo Kuroishi, Motokazu Suyama, Yutaka Ariyoshi, Toshitada Takahashi, and Ryuzo Ueda.

737 **Protein Tyrosine Phosphatase Expression in Pre-B Cell NALM-6.** Masaaki Adachi, Masuo Sekiya, Yoshiaki Arimura, Mitsuhiro Takekawa, Fumio Itoh, Yuji Hinoda, Kohzoh Imai, and Akira Yachi.

741 **Loss of Heterozygosity Affecting the *p53*, *Rb*, and *mcc/apc* Tumor Suppressor Gene Loci in Dysplastic and Cancerous Ulcerative Colitis.** Bruce D. Greenwald, Noam Harpaz, Jing Yin, Ying Huang, Yi Tong, Victoria L. Brown, Tim McDaniel, Carnell Newkirk, James H. Resau, and Stephen J. Meltzer.

746 ***FLT4*, a Novel Class III Receptor Tyrosine Kinase in Chromosome 5q33-qter.** Olga Aprelikova, Katri Pajusola, Juha Partanen, Elina Armstrong, Riitta Alitalo, Stacie K. Bailey, Jeannette McMahon, John Wasmuth, Kay Huebner, and Kari Alitalo.

749 **Altered Expression of Wild-Type *p53* Tumor Suppressor Gene during Murine Epithelial Cell Transformation.** Kyung-An Han and Molly F. Kulesz-Martin.

754 **Announcements**
Eighty-Third Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Future Annual Meetings of the AACR
Recent Death
Calendar of Events

756 **Author Index**

CONTENTS OF VOLUME 52

February 15, Number 4

EDITORIAL

757 **Progress Report on "Advances in Brief."** Carlo M. Croce.

758 **A New Form of Cytochrome P-450 Responsible for Mutagenic Activation of 2-Amino-3-methylimidazo[4,5-f]quinoline in Human Livers.** Kazuyuki Ubukata, Hiroaki Ohi, Mitsukazu Kitada, and Tetsuya Kamataki.

764 **Interferon-induced Increase in Sensitivity of Ovarian Cancer Targets to Lysis by Lymphokine-activated Killer Cells: Selective Effects on HER2/*neu*-overexpressing Cells.** Catherine Fady, Agnes M. Gardner, Joseph H. Gera, and Alan Lichtenstein.

770 **Consistent Association of 1p Loss of Heterozygosity with Pheochromocytomas from Patients with Multiple Endocrine Neoplasia Type 2 Syndromes.** Jeffrey F. Moley, Michele B. Brother, Chin-To Fong, Peter S. White, Stephen B. Baylin, Barry Nelkin, Samuel A. Wells, and Garrett M. Brodeur.

775 **Tumor-reactive T-Cells Accumulate in Lung Cancer Tissues but Fail to Respond Due to Tumor Cell-derived Factor.** Ichiro Yoshino, Tokujiro Yano, Mitsuhiro Murata, Teruyoshi Ishida, Keizo Sugimachi, Genki Kimura, and Kikuo Nomoto.

782 **Parental Occupation and Childhood Astrocytoma: Results of a Case-Control Study.** René R. Kuijten, Greta R. Bunin, Catharie C. Nass, and Anna T. Meadows.

787 **Reversibility of Catechol-induced Rat Glandular Stomach Lesions.** Masao Hirose, Shigetsugu Wada, Shuji Yamaguchi, Atsuko Masuda, Shuzo Okazaki, and Nobuyuki Ito.

791 **Differential Expression of S19 Ribosomal Protein, Laminin-binding Protein, and Human Lymphocyte Antigen Class I Messenger RNAs Associated with Colon Carcinoma Progression and Differentiation.** Nobuo Kondoh, Clifford W. Schweinfest, Kelly W. Henderson, and Takis S. Papas.

797 **NAD(P)H:Quinone Oxidoreductase Gene Expression in Human Colon Carcinoma Cells: Characterization of a Mutation Which Modulates DT-Diaphorase Activity and Mitomycin Sensitivity.** Robert D. Traver, Tetsuro Horikoshi, Kathleen D. Danenberg, Thomas H. Stadlbauer, Peter V. Danenberg, David Ross, and Neil W. Gibson.

803 **Human Uterine Endometrial Adenocarcinoma: Characteristic Acquirement of Synthetic Potentials for II^3SO_4-LacCer and Ganglio Series Sulfoglycosphingolipids after Transfer of the Cancer Cells to Culture.** Kaneyuki Kubushiro, Katsumi Tsukazaki, Jun Tanaka, Kiyoshi Takamatsu, Kazushige Kiguchi, Mikio Mikami, Shirou Nozawa, Yoshitaka Nagai, and Masao Iwamori.

810 **Localization of Shed Human Tumor Gangliosides: Association with Serum Lipoproteins.** Leonard A. Valentino and Stephan Ladisch.

815 **Baculovirus Recombinant Expressing a Secreted Form of a Transmembrane Carcinoma-associated Antigen.** Christian P. Strassburg, Yasushi Kasai, Beth A. Seng, Pierre Miniou, Jan Zaloudik, Dorothee Herlyn, Hilary Koprowski, and Alban J. Linnenbach.

822 **Ammine/Amine Platinum(IV) Dicarboxylates: A Novel Class of Platinum Complex Exhibiting Selective Cytotoxicity to Intrinsically Cisplatin-resistant Human Ovarian Carcinoma Cell Lines.** Lloyd R. Kelland, Barry A. Murrer, George Abel, Christen M. Giandomenico, Prakash Mistry, and Kenneth R. Harrap.

829 **Identification of a Human Tumor-derived Lipolysis-promoting Factor.** Douglas D. Taylor, Cicek Gercel-Taylor, Louis G. Jenis, and Dennis F. Devereux.

835 **The Fate of Antibodies Bound to the Surface of Tumor Cells *in Vitro*.** Raymond J. Kyriakos, Lisa B. Shih, Gaik Lin Ong, Kirti Patel, David M. Goldenberg, and M. Jules Mattes.

843 **Molecular Heterogeneity of Somatostatin Analogue BIM-23014C Receptors in Human Breast Carcinoma Cells Using the Chemical Cross-Linking Assay.** Grégoire Prévost, Monique Lanson, François Thomas, Nathalie Veber, Walter Gonzalez, Renè Beaupain, Anna Starzec, and Arthur Bogden.

851 **Immunological Effects of Treatment with Sequential Administration of Recombinant Interferon γ and α in Patients with Metastatic Renal Cell Carcinoma during a Phase I Trial.** Marc S. Ernstoff, William Gooding, Suresh Nair, Robert R. Bahnson, Linda M. Miketic, Barbara Banner, Roger Day, Theresa Whiteside, Linda Titus-Ernstoff, and John M. Kirkwood.

857 **The Combined Effects of Dietary Fat, Protein, and Energy Intake on Azoxymethane-induced Intestinal and Renal Carcinogenesis.** Steven K. Clinton, Peter B. Imrey, Heather J. Mangian, Steve Nandkumar, and Willard J. Visek.

866 **Resistance to Cytolysis by Tumor Necrosis Factor α in Malignant Gynecological Cell Lines Is Associated with the Expression of Protein(s) That Prevent the Activation of Phospholipase A_2 by Tumor Necrosis Factor α.** David G. Mutch, C. Bethan Powell, Ming-Shian Kao, and John Leslie Collins.

873 **Deletion Mapping on the Short Arm of Chromosome 3 in Squamous Cell Carcinoma and Adenocarcinoma of the Lung.** Shiro Yokoyama, Kazuhiro Yamakawa, Eiju Tsuchiya, Motoi Murata, Shigeru Sakiyama, and Yusuke Nakamura.

878 ***cis*-Diamminedichloroplatinum(II) Induces *c-jun* Expression in Human Myeloid Leukemia Cells: Potential Involvement of a Protein Kinase C-dependent Signaling Pathway.** Eric Rubin, Surender Kharbanda, Hisato Gunji, Ralph Weichselbaum, and Donald Kufe.

883 **Radiation-induced Apoptosis in a Murine T-Cell Hybridoma.** Raymond L. Warters.

891 **Selective Tumor Localization and Improved Therapeutic Index of Anthracyclines Encapsulated in Long-Circulating Liposomes.** Alberto A. Gabizon.

897 **Fludarabine Infusion Potentiates Arabinosylcytosine Metabolism in Lymphocytes of Patients with Chronic Lymphocytic Leukemia.** Varsha Gandhi, Annette Kemena, Michael J. Keating, and William Plunkett.

904 **Development of Humoral Immune Responses against a Macrocyclic Chelating Agent (DOTA) in Cancer Patients Receiving Radioimmunoconjugates for Imaging and Therapy.** Christos Kosmas, Deborah Snook, Calvin S. Gooden, Nigel S. Courtenay-Luck, Michael J. McCall, Claude F. Meares, and Agamemnon A. Epenetos.

912 **Circadian Variation of Tumor Blood Flow in Rat Subcutaneous Tumors and Its Alteration by Angiotensin II-induced Hypertension.** Katsuyoshi Hori, Maroh Suzuki, Shigeru Tanda, Sachiko Saito, Mika Shinozaki, and Qiu-Hang Zhang.

917 **SMS 201.995 Inhibits *in Vitro* and *in Vivo* Growth of Human Colon Cancer.** David Y. Dy, Robert H. Whitehead, and David L. Morris.

924 **Role of Neovasculature and Vascular Permeability on the Tumor Retention of Photodynamic Agents.** W. Gregory Roberts and Tayyaba Hasan.

931 **The Combination of γ-Interferon and Tumor Necrosis Factor Causes a Rapid and Extensive Differentiation of Human Neuroblastoma Cells.** Mirco Ponzoni, Antonella Casalaro, Marina Lanciotti, Paolo Giuseppe Montaldo, and Paolo Cornaglia-Ferraris.

940 **Introduction of the *ras* Oncogene Transforms a Simian Virus 40-immortalized Hepatocyte Cell Line without Loss of Expression of Albumin and Other Liver-specific Genes.** Harriet C. Isom, Craig D. Woodworth, Yunlian Meng, John Kreider, Thomas Miller, and Lori Mengel.

949 **Changes in Microtubules, Microtubule-associated Proteins, and Intermediate Filaments during the Differentiation of HL-60 Leukemia Cells.** Mun-Fai Leung, John A. Sokoloski, and Alan C. Sartorelli.

955 **Ploidy and Specific Karyotypic Changes during Promotion with Phenobarbital, 2,5,2',5'-Tetrachlorobiphenyl, and/or 3,4,3',4'-Tetrachlorobiphenyl in Rat Liver.** Linda M. Sargent, Gerald L. Sattler, Boyd Roloff, Yi-hua Xu, Carol A. Sattler, Lorraine Meisner, and Henry C. Pitot.

963 **Quantitative Ultrastructural Effects of Cisplatin (Platinol), Carboplatin (JM8), and Iproplatin (JM9) on Neurons of Freshwater Snail *Lymnaea stagnalis*.** Linda J. Müller, Carry M. Moorer-van Delft, Eric W. Roubos, Jan B. Vermorken, and Harry H. Boer.

974 **Quantitative Mapping of 4'-Iododeoxyrubicin in Metastatic Squamous Cell Carcinoma by Secondary Ion Mass Spectrometry (SIMS) Microscopy.** Philippe Fragu, Jerzy Klijanienko, Daniel Gandia, Sylvain Halpern, and Jean-Pierre Armand.

978 **Chemically Induced Forestomach Papillomas in Transgenic Mice Carry Mutant Human c-Ha-*ras* Transgenes.** Kiyoshi Ando, Atsuhiko Saitoh, Okio Hino, Ri-ichi Takahashi, Minoru Kimura, and Motoya Katsuki.

983 **Control of Ha-*ras*-mediated Mammalian Cell Transformation by *Escherichia coli* Regulatory Elements.** Hsiao-Sheng Liu, Heidi Scrable, Douglas B. Villaret, Michael A. Lieberman, and Peter J. Stambrook.

990 **Aflatoxin-transformed C3H/10T½ Cells Overexpress Protein Kinase C and Have an Altered Response to Phorbol Ester Treatments.** Joseph A. Dunn, Michael B. Faletto, Steven J. Kasper, and Hira L. Gurtoo.

997 **Microfilament-disrupting Agents Prevent the Formation of Apoptotic Bodies in Tumor Cells Undergoing Apoptosis.** Thomas G. Cotter, Seamus V. Lennon, Jacqueline M. Glynn, and Douglas R. Green.

1006 **Expression of Platelet-derived Growth Factor and Its Receptors in Neuroendocrine Tumors of the Digestive System.** Arvind Chaudhry, Vasilis Papanicolaou, Kjell Öberg, Carl-Henrik Heldin, and Keiko Funa.

1013 **Antitumor Effects of SMANCS on Rat Mammary Tumor Induced by 7,12-Dimethylbenz[a]anthracene.** Akihiro Kimoto, Toshimitsu Konno, Takanori Kawaguchi, Yoshimasa Miyauchi, and Hiroshi Maeda.

1018 **Disseminating Tumor Cells and Their Interactions with Leukocytes Visualized in the Brain.** Lois A. Lampson, Patrick Wen, Victoria A. Roman, James H. Morris, and Jacob A. Sarid.

ADVANCES IN BRIEF

1026 **Interleukin-9 Is Expressed by Primary and Cultured Hodgkin and Reed-Sternberg Cells.** Hans-Jürgen Gruss, Marion A. Brach, Hans-Günter Drexler, Klaus J. Bross, and Friedhelm Herrmann.

1032 **Infrequent *p53* Mutation in Mouse Tumors with Deregulated *myc*.** Marina I. Gutierrez, Kishor Bhatia, David Siwarski, Linda Wolff, Ian T. Magrath, J. Frederic Mushinski, and Konrad Huppi.

1036 **Sporadic Amplification of the Insulin-like Growth Factor 1 Receptor Gene in Human Breast Tumors.** Els M. J. J. Berns, Jan G. M. Klijn, Iris L. van Staveren, Henk Portengen, and John A. Foekens.

1040 **Tumor Promoters Induce Basic Fibroblast Growth Factor Gene Expression in Human Dermal Fibroblasts.** Jeffrey A. Winkles, Kimberly A. Peifley, and Robert E. Friesel.

1044 **Low Frequency of *p53* Gene Mutation in Tumors Induced by Aflatoxin B_1 in Nonhuman Primates.** Yoshinori Fujimoto, Lori L. Hampton, Lin-di Luo, Peter J. Wirth, and Snorri S. Thorgeirsson.

LETTER TO THE EDITOR

1047 **Correspondence re: R. Grundel and H. Rubin, Effect of Interclonal Heterogeneity on the Progressive, Confluence-mediated Acquisition of the Focus-forming Phenotype in NIH-3T3 Populations. Cancer Res., *51:* 1003–1013, 1991.** Seymour J. Garte. Reply by Ralph Grundel and Harry Rubin.

1051 **Announcements**
Eighty-Third Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Future Annual Meetings of the AACR
Recent Death
Calendar of Events

1053 **Author Index**

March 1, Number 5

EDITORIAL

1055 **Progress Report on "Advances in Brief."** Carlo M. Croce.

REVIEW

1056 **Mechanism of Interferon Action in Hairy Cell Leukemia: A Model of Effective Cancer Biotherapy.** Suresh Vedantham, Haim Gamliel, and Harvey M. Golomb.

1067 **Therapeutic Advantage of High-Affinity Anticarcinoma Radioimmunoconjugates.** Jeffrey Schlom, Diane Eggensperger, David Colcher, Alfredo Molinolo, David Houchens, Larry S. Miller, George Hinkle, and Kathleen Siler.

1073 **Cooperative Estrogen Receptor Interaction with Consensus or Variant Estrogen Responsive Elements *in Vitro*.** Carolyn M. Klinge, Franklin V. Peale, Jr., Russell Hilf, Robert A. Bambara, and Sayeeda Zain.

1082 **Mutagenic Specificity of Oxygen Radicals Produced by Human Leukemia Cells.** Thomas M. Reid and Lawrence A. Loeb.

1087 **Interferon-stimulated Genes in Interferon-sensitive and -resistant Chronic Myelogenous Leukemia Patients.** Moshe Talpaz, Yuti Chernajovsky, Karla Troutman-Worden, Meir Wetzler, Hagop Kantarjian, Jordan U. Gutterman, and Razelle Kurzrock.

1091 **Influence of Intracellular Glutathione on Selenite-mediated Growth Inhibition of Canine Mammary Tumor Cells.** Matthew J. Kuchan and John A. Milner.

1096 **No Change in Repair Capacity of Mouse Lung Irradiated Three Months after a Single Dose of Cyclophosphamide.** M. T. Pouzet and E. L. Travis.

1101 **Cellular Mechanisms Associated with the Lack of Chronic Thermotolerance Expression in HeLa S3 Cells.** Michael A. Mackey, Steven L. Anolik, and Joseph L. Roti Roti.

1107 **c-*myc* Amplification Is a Better Prognostic Factor than *HER2/neu* Amplification in Primary Breast Cancer.** Els M. J. J. Berns, Jan G. M. Klijn, Wim L. J. van Putten, Iris L. van Staveren, Henk Portengen, and John A. Foekens.

1114 **Characterization of Functional Receptors for Gastrointestinal Hormones on Human Colon Cancer Cells.** H. Frucht, A. F. Gazdar, J-A. Park, H. Oie, and R. T. Jensen.

1123 **Cytokine Responses to Intraventricular Injection of Interleukin 2 into Patients with Leptomeningeal Carcinomatosis: Rapid Induction of Tumor Necrosis Factor α, Interleukin 1β, Interleukin 6, γ-Interferon, and Soluble Interleukin 2 Receptor (*M*, 55,000 Protein).** J. List, R. P. Moser, M. Steuer, W. G. Loudon, J. B. Blacklock, and E. A. Grimm.

1129 **Cellular Interactions in Effector Cell Generation and Tumor Regression Mediated by Anti-CD3/Interleukin 2-activated Tumor-draining Lymph Node Cells.** Hirohisa Yoshizawa, Alfred E. Chang, and Suyu Shu.

1137 **Human Lymphoblastoid Cells with Acquired Resistance to C^2-Desamino-C^2-methyl-N^{10}-propargyl-5,8-didrazafolic Acid: A Novel Folate-based Thymidylate Synthase Inhibitor.** Brigid M. O'Connor, Ann L. Jackman, Philip H. Crossley, Sarah E. Freemantle, John Lunec, and A. Hilary Calvert.

1144 **Expression of O^6-Methylguanine-DNA Methyltransferase in Six Human Medulloblastoma Cell Lines.** Xuanmin He, Lawrence E. Ostrowski, Mathew A. von Wronski, Henry S. Friedman, Carol J. Wikstrand, Sandra H. Bigner, Ahmed Rasheed, Surinder K. Batra, Sankar Mitra, Thomas P. Brent, and Darell D. Bigner.

1149 **Biotransformation in Carcinogen-induced Diploid and Polyploid Hepatocytes Separated by Centrifugal Elutriation.** John B. Watkins III, D. Thierau, and Leslie R. Schwarz.

1155 **Immunotherapy of Murine Renal Adenocarcinoma by Systemic Administration of Liposomes Containing the Synthetic Macrophage Activator CGP 31362 or CGP 19835A in Combination with Interleukin 2 or γ-Interferon.** Colin P. N. Dinney, Teruhiro Utsugi, Isaiah J. Fidler, Andrew C. von Eschenbach, and Jerald J. Killion.

1162 **Inhibitory Effect of Green Tea in the Drinking Water on Tumorigenesis by Ultraviolet Light and 12-*O*-Tetradecanoylphorbol-13-acetate in the Skin of SKH-1 Mice.** Zhi-Yuan Wang, Mou-Tuan Huang, Thomas Ferraro, Ching-Quo Wong, You-Rong Lou, Kenneth Reuhl, Michael Iatropoulos, Chung S. Yang, and Allan H. Conney.

CONTENTS OF VOLUME 52

1171 **Effect of O^6-Benzylguanine on the Sensitivity of Human Tumor Xenografts to 1,3-Bis(2-chloroethyl)-1-nitrosourea and on DNA Interstrand Cross-Link Formation.** R. Brian Mitchell, Robert C. Moschel, and M. Eileen Dolan.

1176 **Metabolism and DNA Binding of 2-Nitropyrene in the Rat.** Pramod Upadhyaya, Ajit K. Roy, Peter P. Fu, and Karam El-Bayoumy.

1182 **Recombinant Human Mullerian Inhibiting Substance Inhibits Human Ocular Melanoma Cell Lines *in Vitro* and *in Vivo*.** Robert L. Parry, Taiwai Chin, James Epstein, Peter L. Hudson, David M. Powell, and Patricia K. Donahoe.

1187 **Growth-inhibitory Action of an Estrogen-Chlorambucil Conjugate (KM2210) in Human Breast Cancer Cell Line MCF-7: Its Relation to Reduction of Estrogen Receptor and Transforming Growth Factor-α Secretion.** Hiroshi Kosano, Tetsuro Kubota, Nakaaki Ohsawa, Shunji Yamamori, Osahiko Abe, Hirohumi Inagaki, and Naokazu Nagata.

1192 **Glutaminase and Glutamine Synthetase Activities in Human Cirrhotic Liver and Hepatocellular Carcinoma.** Tetsuya Matsuno and Iori Goto.

1195 **Inhibition of Experimental Metastasis and Cell Adhesion of B16F1 Melanoma Cells by Inhibitors of Protein Kinase C.** Jennifer A. Dumont, Winion D. Jones, Jr., and Alan J. Bitonti.

1201 **β_2-Microglobulin Gene Is Mutated in a Human Colon Cancer Cell Line (HCT) Deficient in the Expression of HLA Class I Antigens on the Cell Surface.** Sebastiano Gattoni-Celli, Katharina Kirsch, Rita Timpane, and Kurt J. Isselbacher.

1205 **CA54/61 as a Marker for Epithelial Ovarian Cancer.** Shiro Nozawa, Daisuke Aoki, Masazumi Yajima, Katsumi Tsukazaki, Toshibumi Kobayashi, Eizo Kimura, Yoshiteru Terashima, Noriyuki Inaba, Hiroyoshi Takamizawa, Yoshiyuki Negishi, Hisanao Ohkura, Hiroshi Sato, and Hiroshi Mochizuki.

1210 **Altered Gene Expression of *c-myc*, Epidermal Growth Factor Receptor, Transforming Growth Factor-α, and *c-erb*-B2 in an Immortalized Human Breast Epithelial Cell Line, HMT-3522, Is Associated with Decreased Growth Factor Requirements.** Mogens Winkel Madsen, Anne E. Lykkesfeldt, Inga Laursen, Kirsten Vang Nielsen, and Per Briand.

1218 **The Synthetic Hepatic Peptides Pyroglutamylglutamylglycylseryllysparagine and PyroglutamylglutamylglycylseryllysparticAcid Inhibit Growth of MH_2C_1 Rat Hepatoma Cells Transplanted into Buffalo Rats or Athymic Mice.** Jan Erik Paulsen, Kirsten Sundby Hall, Hans Erik Rugstad, Karl Ludvig Reichelt, and Kjell Elgjo.

1222 **CA 72-4 Measurement of Tumor-associated Glycoprotein 72 (TAG-72) as a Serum Marker in the Management of Gastric Carcinoma.** Fiorella Guadagni, Mario Roselli, Teresa Amato, Maurizio Cosimelli, Pasquale Perri, Vincenzo Casale, Massimo Carlini, Eugenio Santoro, Renato Cavaliere, John W. Greiner, and Jeffrey Schlom.

1228 **Selective Radiation of Hematolymphoid Tissue Delivered by Anti-CD45 Antibody.** Dana C. Matthews, Christopher C. Badger, Darrell R. Fisher, T. Edmund Hui, Cynthia Nourigat, Frederick R. Appelbaum, Paul J. Martin, and Irwin D. Bernstein.

1235 **Effectiveness of a Lysyl Chlorin p6/Chlorin p6 Mixture in Photodynamic Therapy of the Subcutaneous 91. Glioma in the Rat.** Michael W. Leach, Robert J. Higgins, James E. Boggan, Shwn-Ji Lee, Susan Autry, and Kevin M. Smith.

1240 **Antitumoral and Endocrine Effects of (+)-Vorozole in Rats Bearing Dimethylbenzanthracene-induced Mammary Tumors.** Roland De Coster, Robert F. Van Ginckel, Myriam J. L. Callens, Nick K. G. Goeminne, and Boudewijn L. E. Janssens.

1245 **Camptothecin Induces Differentiation and Stimulates the Expression of Differentiation-related Genes in U-937 Human Promonocytic Leukemia Cells.** Patricio Aller, Carlos Rius, Felicisima Mata, Ana Zorrilla, Carlos Cabañas, Teresa Bellón, and Carmelo Bernabeu.

1252 **A Rationale for Carboplatin Treatment and Abdominal Hyperthermia in Cancers Restricted to the Peritoneal Cavity.** Gerrit Los, Oskar A. G. Smals, Marianne J. H. van Vugt, Martin van der Vlist, Leo den Engelse, J. Gordon McVie, and H. M. Pinedo.

1259 **Nonglycolytic Acidification of Murine Radiation-induced Fibrosarcoma 1 Tumor via 3-*O*-Methyl-D-Glucose Monitored by ^1H, ^2H, ^{13}C, and ^{31}P Nuclear Magnetic Resonance Spectroscopy.** Yuying C. Hwang, Seong-Gi Kim, Jeffrey L. Evelhoch, and Joseph J. H. Ackerman.

1267 **Binding of Aflatoxin B_1 Metabolites in Extrahepatic Tissues in Fetal and Infant Mice and in Adult Mice with Depleted Glutathione Levels.** Pia Larsson and Hans Tjalve.

1278 **Differential Effects of Bryostatin 1 and Phorbol Ester on Human Breast Cancer Cell Lines.** M. John Kennedy, Laura J. Prestigiacomo, Greg Tyler, W. Stratford May, and Nancy E. Davidson.

1284 **Effects of Target Antigen Competition on Distribution of Monoclonal Antibody to Solid Tumors.** Stephen J. Kennel.

1291 **Expression of Calcyclin in Human Melanoma Cell Lines Correlates with Metastatic Behavior in Nude Mice.** Marian A. J. Weterman, Geert M. Stoopen, Goos N. P. van Muijen, Jacek Kuznicki, Dirk J. Ruiter, and Henri P. J. Bloemers.

1297 **Suppression of Tumorigenicity and Anchorage-independent Growth of BK Virus-transformed Mouse Cells by Human Chromosome 11.** Massimo Negrini, Antonella Castagnoli, Jorge V. Pavan, Silvia Sabbioni, Diana Araujo, Alfredo Corallini, Francesca Gualandi, Paola Rimessi, Alessandra Bonfatti, Cecilia Giunta, Alberto Sensi, Eric J. Stanbridge, and Giuseppe Barbanti-Brodano.

1304 **Nuclear Enlargement Induced by Hepatocarcinogens Alters Ploidy.** Gary A. Clawson, Lori J. Blankenship, Jean G. Rhame, and David S. Wilkinson.

1309 **Effect of Tumor Size on the Enhancement by γ Interferon of the Localization of Radiolabeled $F(ab')_2$ Fragments of Anti-Intercellular Adhesion Molecule-1 Monoclonal Antibodies in Human Colon Carcinoma Cells Grafted in Nude Mice.** Masashi Matsui, Satomichi Yoshimura, Toshihiro Nakanishi, and Soldano Ferrone.

1314 **Successful Treatment of Human Acute T-Cell Leukemia in SCID Mice Using the Anti-CD7-deglycosylated Ricin A-Chain Immunotoxin DA7.** Burkhard Jansen, Daniel A. Vallera, Waclaw B. Jaszcz, Dat Nguyen, and John H. Kersey.

1322 **Chromosome Alterations in Human Small Cell Lung Cancer: Frequent Involvement of 5q.** Ikuo Miura, Stephen L. Graziano, Jin Quan Cheng, L. Austin Doyle, and Joseph R. Testa.

1329 **Hepatitis B Virus Replication in Well Differentiated Mouse Hepatocyte Cell Lines Immortalized by Plasmid DNA.** Shu-Hsia Chen, Cheng-po Hu, and Chungming Chang.

1336 **Localization of Messenger RNA for *M*, 72,000 and 92,000 Type IV Collagenases in Human Skin Cancers by *in Situ* Hybridization.** Charles Pyke, Elisabeth Ralfkiær, Piricko Huhtala, Tina Hurskainen, Keld Danø, and Karl Tryggvason.

1342 **Tumor Necrosis Factor α Induces Apoptosis in Mammary Adenocarcinoma Cells by an Increase in Intranuclear Free Ca^{2+} Concentration and DNA Fragmentation.** Giorgio Bellomo, Mariarosa Perotti, Filippo Taddei, Francesca Mirabelli, Giorgio Finardi, Pierluigi Nicotera, and Sten Orrenius.

1347 **Site-dependent Differences in Sensitivity of LOX Human Melanoma Tumors in Nude Rats to Dacarbazine and Mitozolomide, but not to Doxorubicin and Cisplatin.** Inge Kjønniksen, Knut Breistøl, and Øystein Fodstad.

1352 ***In Vitro* and *in Vivo* Enhancement of Ricin-A Chain Immunotoxin Activity by Novel Indolizine Calcium Channel Blockers: Delayed Intracellular Degradation Linked to Lipidosis Induction.** Jean-Pierre Jaffrézou, Thierry Levade, Olivier Thurneyssen, Marielle Chiron, Christine Bordier, Michel Attal, Pierre Chatelain, and Guy Laurent.

ADVANCES IN BRIEF

1360 **Induction of Covalent DNA Adducts in Rodents by Tamoxifen.** Xueliang Han and Joachim G. Liehr.

1364 **Inverse Relationship between *trk* Expression and N-*myc* Amplification in Human Neuroblastomas.** Akira Nakagawara, Miwako Arima, Christopher G. Azar, Nancy J. Scavarda, and Garrett M. Brodeur.

1369 **Unique Association of *p53* Mutations with Undifferentiated but not with Differentiated Carcinomas of the Thyroid Gland.** Takashi Ito, Toshio Seyama, Terumi Mizuno, Naohiro Tsuyama, Tomonori Hayashi, Yuzo Hayashi, Kiyohiko Dohi, Nori Nakamura, and Mitoshi Akiyama.

1372 **Mechanisms of Cell Growth Inhibition and Cell Cycle Arrest in Human Colonic Adenocarcinoma Cells by Dehydroepiandrosterone: Role of Isoprenoid Biosynthesis.** Stefan Schulz, Richard C. Klann, Solveig Schönfeld, and Jonathan W. Nyce.

1377 **Partial Purification of a Human DNA Glycosylase Acting on the Cyclic Carcinogen Adduct $1,N^6$-Ethenodeoxyadenosine.** B. Rydberg, Z-H. Qiu, M. K. Dosanjh, and B. Singer.

1380 **Announcements**
Eighty-Third Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Future Annual Meetings of the AACR
Recent Deaths
Calendar of Events

1382 **Erratum**
K. Stromberg *et al.*, 52: 341–347, 1992.

1383 **Author Index**

March 15, Number 6

EDITORIAL

1385 **Progress Report on "Advances in Brief."** Carlo M. Croce.

1386 **Inhibition of Tumor-specific Cytotoxic T-Lymphocyte Responses by Transforming Growth Factor β_1.** Thomas H. Inge, Shelley K. Hoover, Brian M. Susskind, Sandra K. Barrett, and Harry D. Bear.

1393 **Frequent Association of p53 Gene Mutation in Invasive Bladder Cancer.** Kiyohide Fujimoto, Yukishige Yamada, Eigoro Okajima, Tadao Kakizoe, Hiroki Sasaki, Takashi Sugimura, and Masaaki Terada.

1399 **Selective Events in the Metastatic Process Defined by Analysis of the Sequential Dissemination of Subpopulations of a Mouse Mammary Tumor.** Cheryl J. Aslakson and Fred R. Miller.

1406 **Phase I Trial and Clinical Pharmacology of Elsamitrucin.** Martin N. Raber, Robert A. Newman, Beverly M. Newman, Robert C. Gaver, and Lee P. Schacter.

1411 **Steroid and Growth Factor Modulation of Aromatase Activity in MCF7 and T47D Breast Carcinoma Cell Lines.** Carolyn M. Ryde, Joanne E. Nicholls, and Mitchell Dowsett.

1416 **Hepsulfam Sensitivity in Human Breast Cancer Cell Lines: The Role of Glutathione and Glutathione *S*-Transferase in Resistance.** Deborah K. Armstrong, Gary B. Gordon, John Hilton, Robert T. Streeper, O. Michael Colvin, and Nancy E. Davidson.

1422 **Tumor Invasion-inhibiting Factor 2: Primary Structure and Inhibitory Effect on Invasion *in Vitro* and Pulmonary Metastasis of Tumor Cells.** Atsushi Isoai, Yuko Giga-Hama, Kiyoko Shinkai, Mutsuko Mukai, Hitoshi Akedo, and Hiromichi Kumagai.

1427 **p53 Mutations in Human Malignant Gliomas: Comparison of Loss of Heterozygosity with Mutation Frequency.** Roger H. Frankel, William Bayona, Maxim Koslow, and Elizabeth W. Newcomb.

1434 **Mechanisms of Natural Resistance to Antifolates in Human Soft Tissue Sarcomas.** Wei-Wei Li, James T. Lin, William P. Tong, Tanya M. Trippett, Murray F. Brennan, and Joseph R. Bertino.

1439 **A Model for Initiated Mouse Skin: Suppression of Papilloma but not Carcinoma Formation by Normal Epidermal Cells in Grafts on Athymic Nude Mice.** James E. Strickland, Masato Ueda, Henry Hennings, and Stuart H. Yuspa.

1445 **Differentiation and Retrodifferentiation of Human Myeloid Leukemia Cells Is Associated with Reversible Induction of Cell Cycle-regulatory Genes.** Ralf Hass, Hisato Gunji, Rakesh Datta, Surender Kharbanda, Andreas Hartmann, Ralph Weichselbaum, and Donald Kufe.

1451 **Chromosome 3p Deletions in Head and Neck Carcinomas: Statistical Ascertainment of Allelic Loss.** Farida Latif, Matthew Fivash, Gladys Glenn, Kalman Tory, Mary Lou Orcutt, Krista Hampsch, John Delisio, Michael Lerman, Janet Cowan, Michael Beckett, and Ralph Weichselbaum.

1457 **Elevated Expression of $pp60^{c\text{-}src}$ in Low Grade Human Bladder Carcinomas.** Paul Fanning, Kathleen Bulovas, Kulvinder S. Saini, John A. Libertino, Adrian D. Joyce, and Ian C. Summerhayes.

1463 **Reduced Blood Clearance and Increased Urinary Excretion of *N*-Nitrosodimethylamine in Patas Monkeys Exposed to Ethanol or Isopropyl Alcohol.** Lucy M. Anderson, Raymond Koseniauskas, Eric S. Burak, Thomas J. Moskal, Charles T. Gombar, Jere M. Phillips, Eric B. Sansone, Scott Keimig, Peter N. Magee, Jerry M. Rice, and George W. Harrington.

1469 **Acquired Radioresistance of Hematopoietic Progenitors (Granulocyte/Monocyte Colony-forming Units) during Chronic Radiation Leukemogenesis.** Thomas M. Seed and Lillian V. Kaspar.

1477 **Effect of Tamoxifen on Preneoplastic Cell Proliferation in *N*-Nitroso-*N*-methylurea-induced Mammary Carcinogenesis.** Michael P. Osborne, Jeanne F. Ruperto, Joseph P. Crowe, Paul P. Rosen, and Nitin T. Telang.

1481 **Chromosome Abnormalities in Adult T-Cell Leukemia/Lymphoma: A Karyotype Review Committee Report.** Nanao Kamada, Masaharu Sakurai, Kanji Miyamoto, Isao Sanada, Naoki Sadamori, Shirou Fukuhara, Syuiti Abe, Yukimasa Shiraishi, Tatsuo Abe, Yasuhiko Kaneko, and Masanori Shimoyama.

1494 **Loss of Heterozygosity at Chromosome 1q22 in Basal Cell Carcinomas and Exclusion of the Basal Cell Nevus Syndrome Gene from This Site.** John W. Bare, Roger V. Lebo, and Ervin H. Epstein, Jr.

1499 **Determinants of Polycyclic Aromatic Hydrocarbon-DNA Adducts in Human Placenta.** David K. Manchester, Elise D. Bowman, Natalie B. Parker, Neil E. Caporaso, and Ainsley Weston.

1504 **Different Pattern of Chromosomal Allele Loss in Multiple Hepatocellular Carcinomas as Evidence of Their Multifocal Origin.** Hitoshi Tsuda, Tatsuya Oda, Michiie Sakamoto, and Setsuo Hirohashi.

1510 **Detection of Polycyclic Aromatic Hydrocarbon-DNA Adducts in White Blood Cells from Coke Oven Workers: Correlation with Job Categories.** Steinar Øvrebø, Aage Haugen, David H. Phillips, and Alan Hewer.

1515 **DNA Damage and Cytotoxicity in L1210 Cells by Ellipticine and a Structural Analogue, *N*-2-(Diethylaminoethyl)-9-hydroxy-ellipticinium Chloride.** Zora Djuric, Carleen K. Everett, and Frederick A. Valeriote.

1520 **Immunoreactive Human Chorionic Gonadotropin and Its Free β Subunit in Serum and Ascites of Patients with Malignant Tumors.** Rudolf Hoermann, Alexander L. Gerbes, Gerald Spoettl, Dieter Jüngst, and Klaus Mann.

1525 **Tumor-promoting Phorbol Ester Down-Regulates the Androgen Induction of Prostate-specific Antigen in a Human Prostatic Adenocarcinoma Cell Line.** P. E. Andrews, C. Y-F. Young, B. T. Montgomery, and D. J. Tindall.

1530 **Cytostatic and Cytotoxic Effects of Fostriecin on Human Promyelocytic HL-60 and Lymphocytic MOLT-4 Leukemic Cells.** Michel A. Hotz, Giacinta Del Bino, Piotr Lassota, Frank Traganos, and Zbigniew Darzynkiewicz.

1536 **A Gene from Human Chromosome Region 3p21 with Reduced Expression in Small Cell Lung Cancer.** Ben Carritt, Klaas Kok, Anke van den Berg, Jan Osinga, Alison Pilz, Robert M. W. Hofstra, Mary B. Davis, Anneke Y. van der Veen, Pamela H. Rabbitts, Kiran Gulati, and Charles H. C. M. Buys.

1542 **Induction of Colon Adenocarcinomas in CD Rats and Lung Adenomas in ICR Mice by 6-Nitrochrysene: Comparison of Carcinogenicity and Aryl Hydrocarbon Hydroxylase Induction in the Target Organs of Each Species.** Katsumi Imaida, Chikako Uneyama, Hiroyuki Ogasawara, Shuji Hayashi, Kiyoshi Fukuhara, Naoki Miyata, and Michihito Takahashi.

1546 **A Metastatic Tumor Cell Line Has Greatly Reduced Levels of a Specific Homotypic Cell Adhesion Molecule Activity.** Mark E. Reeves.

1553 **Tumor Types Derived from Epithelial and Myoepithelial Cell Lines of R3230AC Rat Mammary Carcinoma.** Anna Sapino, Mauro Papotti, Brunella Sanfilippo, Patrizia Gugliotta, and Gianni Bussolati.

1561 **Expression of High-Affinity Laminin Receptor mRNA Correlates with Cell Proliferation Rather than Invasion in Human Papilloma-virus-associated Cervical Neoplasms.** Lisa M. Demeter, Mark H. Stoler, Mark E. Sobel, Thomas R. Broker, and Louise T. Chow.

1568 **Molecular Characterization of Areas with Low Grade Tumor or Satellitosis in Human Malignant Astrocytomas.** Sieger Leenstra, Dirk Troost, Andries Westerveld, D. Andries Bosch, and Theo J. M. Hulsebos.

1573 **Nephrocalcin: Biosynthesis by Human Renal Carcinoma Cells *in Vitro* and *in Vivo*.** Y. Nakagawa, D. Sirivongs, M. B. Novy, Michael F. Netzer, Eli Michaels, N. J. Vogelzang, and F. L. Coe.

1580 **Influence of Chromatin Structure on the Induction of DNA Double Strand Breaks by Ionizing Radiation.** Michael C. Elia and Matthews O. Bradley.

CONTENTS OF VOLUME 52

1587 **Accumulation of ^{10}B in the Central Degenerative Areas of Human Glioma and Colon Carcinoma Spheroids after Sulfhydryl Boron Hydride Administration.** Orn-Anong Pettersson, Jörgen Carlsson, and Erik Grusell.

1592 **Measurements of Blood Flow and Exchanging Water Space in Breast Tumors Using Positron Emission Tomography: A Rapid and Non-invasive Dynamic Method.** Charles B. J. H. Wilson, Adriaan A. Lammertsma, Christopher G. McKenzie, Karol Sikora, and Terry Jones.

1598 **Serum Prostate Specific Antigen Levels in Mice Bearing Human Prostate LNCaP Tumors Are Determined by Tumor Volume and Endocrine and Growth Factors.** Martin E. Gleave, Jer-Tsong Hsieh, Hsi-Chin Wu, Andrew C. von Eschenbach, and Leland W. K. Chung.

1606 **Tumorigenic Transformation and Neoplastic Progression of Human Uroepithelial Cells after Exposure *in Vitro* to 4-Aminobiphenyl or Its Metabolites.** Elizabeth A. Bookland, Santhanam Swaminathan, Ryoichi Oyasu, Kennedy W. Gilchrist, Mary Lindstrom, and Catherine A. Reznikoff.

1615 **Induction of Thioguanine-resistant Mutations in Human Uroepithelial Cells by 4-Aminobiphenyl and Its *N*-Hydroxy Derivatives.** Elizabeth A. Bookland, Catherine A. Reznikoff, Mary Lindstrom, and Santhanam Swaminathan.

1622 **Overexpression and Mutation of *p53* in Endometrial Carcinoma.** Matthew F. Kohler, Andrew Berchuck, Andrew M. Davidoff, Peter A. Humphrey, Richard K. Dodge, J. Dirk Iglehart, John T. Soper, Daniel L. Clarke-Pearson, Robert C. Bast, Jr., and Jeffrey R. Marks.

ADVANCES IN BRIEF

1628 **Inhibition of Chemical Carcinogenesis *in Vivo* by Azatyrosine.** Mitsuo Izawa, Shozo Takayama, Nobuko Shindo-Okada, Satoru Doi, Minoru Kimura, Motoya Katsuki, and Susumu Nishimura.

1631 **Loss of the 3p13→p21.2 in Tumorigenic Reversion of a Hybrid between Isogeneic Nontumorigenic and Tumorigenic Human Uroepithelial Cells.** Aloysius J. Klingelhutz, Shi-Qi Wu, Jinwen Huang, and Catherine A. Reznikoff.

1635 ***p53* Mutations Cluster at Codon 249 in Hepatitis B Virus-positive Hepatocellular Carcinomas from China.** Kathleen A. Scorsone, Yi-Zhong Zhou, Janet S. Butel, and Betty L. Slagle.

1639 **Conjugation of Benzo(*a*)pyrene 7,8-Dihydrodiol-9,10-epoxide in Infant Swiss-Webster Mice.** Gloria Y. Kwei, Jan Zaleski, Susan E. Irwin, Ronald G. Thurman, and Frederick C. Kauffman.

1643 **The Human Prohibitin Gene Located on Chromosome 17q21 Is Mutated in Sporadic Breast Cancer.** Takaaki Sato, Hiroko Saito, Jeff Swensen, Arnold Olifant, Carla Wood, David Danner, Takashi Sakamoto, Kenichi Takita, Fujio Kasumi, Yoshio Miki, Mark Skolnick, and Yusuke Nakamura.

1647 **Announcements**
Eighty-Third Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Future Annual Meetings of the AACR
Calendar of Events

1649 **Erratum**
H. M. Schuller *et al.*, 50: 1645–1649, 1990.

1650 **Author Index**

April 1, Number 7

PERSPECTIVES IN CANCER RESEARCH

1651 **Natural History of Intraepithelial Neoplasia in Humans with Implications for Cancer Chemoprevention Strategy.** Charles W. Boone, Gary J. Kelloff, and Vernon E. Steele.

1660 **Brequinar Potentiates 5-Fluorouracil Antitumor Activity in a Murine Model Colon 38 Tumor by Tissue-specific Modulation of Uridine Nucleotide Pools.** Giuseppe Pizzorno, Rosemary A. Wiegand, Sarah K. Lentz, and Robert E. Handschumacher.

1666 **Multidrug Sensitivity Phenotype of Human Lung Cancer Cells Associated with Topoisomerase II Expression.** Giuseppe Giaccone, Adi F. Gazdar, Hans Beck, Franco Zunino, and Giovanni Capranico.

1675 **Carcinogenicity of Uracil, a Nongenotoxic Chemical, in Rats and Mice and Its Rationale.** Shoji Fukushima, Hikaru Tanaka, Emiko Asakawa, Masataka Kagawa, Atsushi Yamamoto, and Tomoyuki Shirai.

1681 **Production and Characterization of a Murine/Human Chimeric Anti-Idiotype Antibody That Mimics Ganglioside.** Alice Hastings, Sherie L. Morrison, Shinji Kanda, Romaine E. Saxton, and Reiko F. Irie.

1687 **Radiosensitization by Fluorodeoxyuridine: Effects of Thymidylate Synthase Inhibition and Cell Synchronization.** Elizabeth M. Miller and T. J. Kinsella.

1695 ***p53* Mutations in Human Lung Tumors.** Carl W. Miller, Kenneth Simon, Abdulkarim Aslo, Klaas Kok, Jun Yokota, Charles H. C. M. Buys, Masaaki Terada, and H. Phillip Koeffler.

1699 **Involvement of Xanthine Oxidase in Oxidative Stress and Iron Release during Hyperthermic Rat Liver Perfusion.** Robert H. Powers, Anna Stadnicka, John H. Kalbfleish, and Joseph L. Skibba.

1704 **Differential Effects of Estrogen and Antiestrogen on Transforming Growth Factor Gene Expression in Endometrial Adenocarcinoma Cells.** Yuewen Gong, Gustavo Ballejo, Leigh C. Murphy, and Liam J. Murphy.

1710 **Establishment and Characterization of an *in Vitro* Model of Acquired Resistance to Cisplatin in a Human Testicular Nonseminomatous Germ Cell Line.** Lloyd R. Kelland, Prakash Mistry, George Abel, Frank Freidlos, Swee Y. Loh, John J. Roberts, and Kenneth R. Harrap.

1717 **Determination of Plasma Urokinase-type Plasminogen Activator Antigen in Patients with Primary Liver Cancer: Characterization as Tumor-associated Antigen and Comparison with α-Fetoprotein.** Kurt Huber, Johannes C. Kirchheimer, Dorothea Ermler, Cameron Bell, and Bernd R. Binder.

1721 **Benzoquinonoid Ansamycins Possess Selective Tumoricidal Activity Unrelated to *src* Kinase Inhibition.** Luke Whitesell, Stuart D. Shifrin, Gisela Schwab, and L. M. Neckers.

1729 **Enhancement of 5-Fluoro-2′-deoxyuridine Antineoplastic Activity by 5-Benzyloxybenzyloxybenzylacyclouridine in a Human Colon Carcinoma Cell Line.** Edward Chu, Ming Y. Chu, James W. Darnowski, Zhi H. Chen, Bai C. Pan, and Shih H. Chu.

1737 **Fate of Clonal Lineages during Neoplasia and Metastasis Studied with an Incorporated Genetic Marker.** Bruce F. Moffett, Dilair Baban, Lere Bao, and David Tarin.

1744 **Eicosanoid Production by the Human Gastric Cancer Cell Line AGS and Its Relation to Cell Growth.** Shuya Shimakura and C. Richard Boland.

1750 **Tempol, a Stable Free Radical, Is a Novel Murine Radiation Protector.** Stephen M. Hahn, Zelig Tochner, C. Murali Krishna, Joseph Glass, Lynn Wilson, Amram Samuni, Merle Sprague, David Venzon, Eli Glatstein, James B. Mitchell, and Angelo Russo.

1754 **Inhibition of Benzo[*a*]pyrene-induced Mouse Forestomach Neoplasia by a Principal Flavor Component of Japanese-style Fermented Soy Sauce.** Ayumu Nagahara, Hania Benjamin, Jayne Storkson, Jennifer Krewson, Kuan Sheng, Wei Liu, and Michael W. Pariza.

1757 **Metabolism of 4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone in Human Lung and Liver Microsomes and Cytochromes P-450 Expressed in Hepatoma Cells.** Theresa J. Smith, Zuyu Guo, Frank J. Gonzalez, F. Peter Guengerich, Gary D. Stoner, and Chung S. Yang.

1764 **Retention of Cellular Radiation Sensitivity in Cell and Xenograft Lines Established from Human Melanoma Surgical Specimens.** Einar K. Rofstad.

1770 **Role of Aldehyde Dehydrogenase in the Protection of Hematopoietic Progenitor Cells from 4-Hydroperoxycyclophosphamide by Interleukin 1β and Tumor Necrosis Factor.** J. Moreb, J. R. Zucali, Y. Zhang, M. O. Colvin, and M. A. Gross.

1775 **Sialyltransferase Activity and Hepatic Tumor Growth in a Nude Mouse Model of Colorectal Cancer Metastases.** Brian E. Harvey, Carol Ann Toth, Hans E. Wagner, Glenn D. Steele, Jr., and Peter Thomas.

1780 **Loss of Heterozygosity for Chromosomes 1 or 14 Defines Subsets of Advanced Neuroblastomas.** Chin-to Fong, Peter S. White, Karen Peterson, Carmen Sapienza, Webster K. Cavenee, Scott E. Kern, Bert Vogelstein, Alan B. Cantor, A. Thomas Look, and Garrett M. Brodeur.

1786 **Bombesin and Glucocorticoids Stimulate Human Breast Cancer Cells to Produce Endothelin, a Paracrine Mitogen for Breast Stromal Cells.** Michael P. Schrey, Kirti V. Patel, and Nikolaos Tezapsidis.

1791 **Association of Cyst Type with Risk Factors for Breast Cancer and Relapse Rate in Women with Gross Cystic Disease of the Breast.** Carlo Naldoni, Massimo Costantini, Luigi Dogliotti, Paolo Bruzzi, Lauro Bucchi, Gianfranco Buzzi, Mirella Torta, and Alberto Angeli.

1796 **Stable Expression of Human Cytochrome P450IIE1 in Mammalian Cells: Metabolic Activation of Nitrosodimethylamine and Formation of Adducts with Cellular DNA.** Kazuhiro Nouso, Snorri S. Thorgeirsson, and Narayana Battula.

1801 **Relevance of Environmental Alkylating Agents to Repair Protein O^6-Alkylguanine-DNA Alkyltransferase: Determination of Individual and Collective Repair Capacities of O^6-Methylguanine.** F. Oesch and S. Klein.

1804 **Irradiation-induced Expression of O^6-Methylguanine-DNA Methyltransferase in Mammalian Cells.** C-L. Chan, Zining Wu, Alan Eastman, and Edward Bresnick.

1810 **Reversal of *Vinca* Alkaloid Resistance by Anti-P-Glycoprotein Monoclonal Antibody HYB-241 in a Human Tumor Xenograft.** Lana S. Rittmann-Grauer, Milicent A. Yong, Vikki Sanders, and Daniel G. Mackensen.

1817 **Inhibition of $p34^{cdc2}$ Kinase Activation, $p34^{cdc2}$ Tyrosine Dephosphorylation, and Mitotic Progression in Chinese Hamster Ovary Cells Exposed to Etoposide.** Richard B. Lock.

1823 **The Involvement of Active DNA Synthesis in Camptothecin-induced G_2 Arrest: Altered Regulation of $p34^{cdc2}$/Cyclin B.** Yeou-Ping Tsao, Peter D'Arpa, and Leroy F. Liu.

1830 **Suramin Inhibits the Growth of Human Rhabdomyosarcoma by Interrupting the Insulin-like Growth Factor II Autocrine Growth Loop.** Caterina P. Minniti, Mario Maggi, and Lee J. Helman.

1836 **Induction of Mutation of a Synthetic c-Ha-*ras* Gene Containing Hypoxanthine.** Hiroyuki Kamiya, Hiroyuki Miura, Hisayo Kato, Susumu Nishimura, and Eiko Ohtsuka.

1840 **Differential Effects of Polyamine Homologues on the Prevention of DL-α-Difluoromethylornithine-mediated Inhibition of Malignant Cell Growth and Normal Immune Response.** Ajay B. Singh, T. J. Thomas, Thresia Thomas, Manjeet Singh, and Richard A. Mann.

1848 **Topoisomerase I Alteration in a Camptothecin-resistant Cell Line Derived from Chinese Hamster DC3F Cells in Culture.** Akihiko Tanizawa and Yves Pommier.

1855 **Novel Mechanism(s) of Resistance to 5-Fluorouracil in Human Colon Cancer (HCT-8) Sublines following Exposure to Two Different Clinically Relevant Dose Schedules.** Carlo Aschele, Alberto Sobrero, Mary A. Faderan, and Joseph R. Bertino.

1865 **Therapeutic Activity of a Thioether-Lipid Conjugate of 1-β-D-Arabinofuranosylcytosine in Human Colorectal Cancer Xenografts.** Richard Herrmann and Wolfgang E. Berdel.

1868 **Roles of Human Liver Cytochrome P4502C and 3A Enzymes in the 3-Hydroxylation of Benzo(*a*)pyrene.** Chul-Ho Yun, Tsutomu Shimada, and F. Peter Guengerich.

1875 **Elevation of 4β-Galactosyltransferase Activity for Paragloboside Synthesis in Sera of Patients with Cancer.** Shigeru Nishiwaki, Takao Taki, Nobuko Handa, Nobu Hattori, Kimiya Takeshita, Mitsuo Endo, and Shizuo Handa.

1881 **Allelic Losses at Chromosome 17p in Human Renal Cell Carcinoma Are Inversely Related to Allelic Losses at Chromosome 3p.** Osamu Ogawa, Tomonori Habuchi, Yoshiyuki Kakehi, Masahiro Koshiba, Taketoshi Sugiyama, and Osamu Yoshida.

1886 **Biochemical Characterization of Resistance to Mitoxantrone and Adriamycin in Caco-2 Human Colon Adenocarcinoma Cells: A Possible Role for Glutathione *S*-Transferases.** Wilbert H. M. Peters and Hennie M. J. Roelofs.

1891 **Inhibitors of Polyamine Biosynthesis Block Tumor Necrosis Factor-induced Activation of Macrophages.** Leszek Kaczmarek, Bozena Kaminska, Luigi Messina, Giuseppina Spampinato, Antonio Arcidiacono, Lucia Malaguarnera, and Angelo Messina.

1895 **Mitochondrial Defects in *cis*-Diamminedichloroplatinum(II)-resistant Human Ovarian Carcinoma Cells.** Paul A. Andrews and Kathleen D. Albright.

1902 **Loss of *cis*-Diamminedichloroplatinum(II) Resistance in Human Ovarian Carcinoma Cells Selected for Rhodamine 123 Resistance.** Karen Zinkewich-Péotti and Paul A. Andrews.

1907 **Acquisition of a Growth-inhibitory Response to Phorbol Ester Involves DNA Damage.** Yi Sun, Yves Pommier, and Nancy H. Colburn.

1916 **Radiolabeled Antibody Targeting of the HER-2/*neu* Oncoprotein.** Kenneth De Santes, Dennis Slamon, Susan K. Anderson, Michael Shepard, Brian Fendly, Daniel Maneval, and Oliver Press.

1924 **Development of Mammary Preneoplasias *in Vivo* from Mouse Mammary Epithelial Cell Lines *in Vitro*.** Frances S. Kittrell, Carol J. Oborn, and Daniel Medina.

1933 **Formation of PC12 Tumors after Transplantation into Rat Brains: Dependence of Time Course on Host Age.** James D. Hatton, Alex N. Lechtman, and Hoi Sang U.

1938 **Migratory Behavior of PC12 Cells Transplanted into Neonatal Rat Brain.** James D. Hatton, Brent C. Jackson, Patricia Y. Kelley, and Hoi Sang U.

1943 **Inhibition of *N*-Nitrosodiethylamine- and 4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone-induced Tumorigenesis in A/J Mice by Green Tea and Black Tea.** Zhi Yuan Wang, Jun-Yan Hong, Mou-Tuan Huang, Kenneth R. Reuhl, Allan H. Conney, and Chung S. Yang.

1948 **^{252}Cf Relative Biological Effectiveness and Inheritable Effect of Fission Neutrons in Mouse Liver Tumorigenesis.** Tadateru Takahashi, Hiromitsu Watanabe, Kiyohiko Dohi, and Akihiro Ito.

1954 **Tissue-specific Expression of a Human Polymorphic Epithelial Mucin (MUC1) in Transgenic Mice.** Nigel Peat, Sandra J. Gendler, El-Nasir Lalani, Trevor Duhig, and Joyce Taylor-Papadimitriou.

1961 **Intratumoral and Whole-Body Distributions of C110 Anti-Carcinoembryonic Antigen Radioimmunotoxin after Intraperitoneal and Intravenous Injection: A Quantitative Autoradiographic Study.** Tsunao Ito, Thomas W. Griffin, Jeffrey A. Collins, and A. Bertrand Brill.

1968 **Expression of the Retinoblastoma Gene Product in Bladder Carcinoma Cells Associates with a Low Frequency of Tumor Formation.** David W. Goodrich, Yumay Chen, Peter Scully, and Wen-Hwa Lee.

1974 **Expression of *p53* and 17p Allelic Loss in Colorectal Carcinoma.** Julie Cunningham, John A. Lust, Daniel J. Schaid, Gary D. Bren, Herschel A. Carpenter, Elizabeth Rizza, John S. Kovach, and Stephen N. Thibodeau.

1981 **Immunohistochemical Localization of Cell Adhesion Molecule Epithelial Cadherin in Human Arachnoid Villi and Meningiomas.** Yasuo Tohma, Tetsumori Yamashima, and Junkoh Yamashita.

CONTENTS OF VOLUME 52

ADVANCES IN BRIEF

1988 **Phenylacetate: A Novel Nontoxic Inducer of Tumor Cell Differentiation.** Dvorit Samid, Sonsoles Shack, and Lin Ti Sherman.

1993 **Interstitial Hypertension in Head and Neck Tumors in Patients: Correlation with Tumor Size.** Ralph Gutmann, Michael Leunig, Jens Feyh, Alwin E. Goetz, Konrad Messmer, Ernst Kastenbauer, and Rakesh K. Jain.

1996 **Polymorphic Sites within the *MCC* and *APC* Loci Reveal Very Frequent Loss of Heterozygosity in Human Small Cell Lung Cancer.** Domenico D'Amico, David P. Carbone, Bruce E. Johnson, Stephen J. Meltzer, and John D. Minna.

2000 **Altered Steady-State Levels of the Messenger RNAs for *c-myc* and *p53* in L1210 Cell Lines Resistant to Deoxyadenosine.** Joseph G. Cory, Ann H. Cory, Sheree D. Long, Gay L. Carter, and Cheryl E. Johnson.

2004 **Expression of Fibroblast Growth Factor Receptors in Human Leukemia Cells.** Elina Armstrong, Satu Vainikka, Juha Partanen, Jaana Korhonen, and Riitta Alitalo.

2008 **Efficient Repair of O^4-Ethylguanine, but not O^4-Ethylthymine or O^2-Ethylthymine, Is Dependent upon O^6-Alkylguanine-DNA Alkyltransferase and Nucleotide Excision Repair Activities in Human Cells.** S. Maynard Bronstein, Thomas R. Skopek, and James A. Swenberg.

MEETING REPORT

2012 **The Beijing Blood Cell Growth Factors Symposium—Blood Cell Growth Factors: Their Present and Future Use in Hematology and Oncology.** Nicos A. Nicola and Martin J. Murphy, Jr.

2014 **Announcements**
Eighty-Third Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Future Annual Meetings of the AACR
Recent Deaths
Calendar of Events

2017 **Author Index**

April 1, Number 7, Supplement

Scientific Planning Committee and Faculty Listings 2022s

Foreword
Alex Malaspina 2023s

Keynote Address

The Lessons of Life
Sir Richard Doll 2024s

Session I: Fats and Energy

Role of Intervention Trials in Research on Nutrition and Cancer
Maureen M. Henderson 2030s

Dietary Energy and Fat Effects on Tumor Promotion
Diane F. Birt, Edward S. Kris, Myeon Choe, and Jill C. Pelling 2035s

Relationship between Dietary Fat and Experimental Mammary Tumorigenesis: A Review and Critique
Clifford W. Welsch 2040s

Differential Effects of Dietary Linoleic Acid on Mouse Skin-Tumor Promotion and Mammary Carcinogenesis
Susan M. Fischer, Julius Leyton, Marilyn L. Lee, Mary Locniskar, Martha A. Belury, Regina E. Maldve, Thomas J. Slaga, and David H. Bechtel 2049s

Dietary Fiber-mediated Mechanisms in Carcinogenesis
David M. Klurfeld 2055s

Session II: Micronutrients and Microconstituents

Does β-Carotene Explain Why Reduced Cancer Risk Is Associated with Vegetable and Fruit Intake?
Regina G. Ziegler, Amy F. Subar, Neal E. Craft, Giske Ursin, Blossom H. Patterson, and Barry I. Graubard 2060s

Calcium, Vitamin D, and Colon Cancer
Harold L. Newmark and Martin Lipkin 2067s

Methyl Groups in Carcinogenesis: Effects on DNA Methylation and Gene Expression
Elsie Wainfan and Lionel A. Poirier 2071s

Orotic Acid, Nucleotide-Pool Imbalance, and Liver-Tumor Promotion: A Possible Mechanism for the Mitoinhibitory Effects of Orotic Acid in Isolated Rat Hepatocytes
Sharmila Manjeshwar, Aisha Sheikh, Giuseppina Pichiri-Coni, Pierpaolo Coni, Prema M. Rao, Srinivasan Rajalakshmi, Peter Pediaditakis, George Michalopoulos, and Dittakavi S. R. Sarma 2078s

Nitrogen-stimulated Orotic Acid Synthesis and Nucleotide Imbalance
Willard J. Visek 2082s

Inhibition of Carcinogenesis by Minor Dietary Constituents
Lee W. Wattenberg 2085s

Session III: Diet-associated Carcinogens and Mutagens

Food-derived Mutagens and Carcinogens
Keiji Wakabayashi, Minako Nagao, Hiroyasu Esumi, and Takashi Sugimura 2092s

Metabolic Activation and Genotoxicity of Heterocyclic Arylamines
Elizabeth G. Snyderwine, Herman A. J. Schut, Richard H. Adamson, Unnur P. Thorgeirsson, and Snorri S. Thorgeirsson 2099s

Chemical Analysis, Prevention, and Low-Level Dosimetry of Heterocyclic Amines from Cooked Food
James S. Felton, Mark G. Knize, Michelle Roper, Esther Fultz, Nancy H. Shen, and Kenneth W. Turteltaub 2103s

Metabolism of Food-derived Heterocyclic Amines in Human and Rabbit Tissues by P4503A Proteins in the Presence of Flavonoids
Ross A. McKinnon, Wendy M. Burgess, Pauline de la M. Hall, Zaiminuddin Abdul-Aziz, and Michael E. McManus 2108s

Aflatoxins as Risk Factors for Hepatocellular Carcinoma in Humans
Gerald N. Wogan 2114s

Session IV: Mechanisms and Risk Assessment

Alcohol and Cancer
William J. Blot 2119s

Panel Discussion
Allan H. Conney (Session Chairperson), Richard H. Adamson, Ronald W. Hart, Robert J. Scheuplein, Arpad Somogyi, and Takashi Sugimura 2124s

Author Index 2126s

CONTENTS OF VOLUME 52

April 15, Number 8

PERSPECTIVES IN CANCER RESEARCH

2127 **Evolving Concepts in the Systemic Adjuvant Treatment of Breast Cancer.** Gianni Bonadonna.

2138 **Clinical Pharmacology of Oral All-*trans* Retinoic Acid in Patients with Acute Promyelocytic Leukemia.** Josephia R. F. Muindi, Stanley R. Frankel, Christine Huselton, Francis DeGrazia, William A. Garland, Charles W. Young, and Raymond P. Warrell, Jr.

2143 ***In Vivo* Administration of Bryostatin 1, a Protein Kinase C Activator, Decreases Murine Resistance to *Salmonella typhimurium*.** Andrew S. Kraft, Victor Adler, Patti Hall, George R. Pettit, William H. Benjamin, Jr., and David E. Briles.

2148 **Biochemical and Biological Studies on 2-Desamino-2-methylaminopterin, an Antifolate the Polyglutamates of Which Are More Potent Than the Monoglutamate against Three Key Enzymes of Folate Metabolism.** A. Rosowsky, J. Galivan, G. P. Beardsley, H. Bader, B. M. O'Connor, O. Russello, B. A. Moroson, M. T. DeYarman, S. S. Kerwar, and J. H. Freisheim.

2156 **Phosphorylation of Topoisomerase II by Casein Kinase II and Protein Kinase C: Effects of Enzyme-mediated DNA Cleavage/Religation and Sensitivity to the Antineoplastic Drugs Etoposide and 4′-(9-Acridinylamino)methane-sulfon-*m*-anisidide.** Russell F. DeVore, Anita H. Corbett, and Neil Osheroff.

2162 **Effect of Preirradiation of Transplantation Site on Growth Characteristics and Hypoxic Fractions in Human Colon Tumor Xenografts.** John T. Leith, Gia Padfield, Lynn Quaranto, and Seth Michelson.

2167 **Acute Effects of Tumor Necrosis Factor α or Lymphotoxin on Global Blood Flow, Laser Doppler Flux, and Bioenergetic Status of Subcutaneous Rodent Tumors.** M. Kluge, B. Elger, T. Engel, C. Schaefer, J. Seega, and P. Vaupel.

2174 **DNA Fingerprinting Survey of Various Human Tumors and Their Metastases.** Yasuhiro Matsumura and David Tarin.

2180 **Synergistic Cytotoxicity with 2′-Deoxy-5-azacytidine and Topotecan *in Vitro* and *in Vivo*.** Haruyuki Anzai, Philip Frost, and James L. Abbruzzese.

2186 **Increased Messenger RNA Levels of the Antagonist Thyroid Hormone Receptor *erbA*-α2 and Decreased Levels of *erbA*-α1 and *erbA*-β1 Receptor Messenger RNAs in Neoplastic Rodent Cells.** Catherine K. L. Too and Duane L. Guernsey.

2191 **Rapid High-Affinity Transport of a Chemotherapeutic Amino Acid across the Blood-Brain Barrier.** Yoshiaki Takada, David T. Vistica, Nigel H. Greig, David Purdon, Stanley I. Rapoport, and Quentin R. Smith.

2197 **Synergy of Interleukin 3 and Tumor Necrosis Factor α in Stimulating Clonal Growth of Acute Myelogenous Leukemia Blasts Is the Result of Induction of Secondary Hematopoietic Cytokines by Tumor Necrosis Factor α.** Marion A. Brach, Hans-Jurgen Gruss, Yoshinobu Asano, Sven de Vos, Wolf-Dieter Ludwig, Roland Mertelsmann, and Friedhelm Herrmann.

2202 **Up-regulated Biosynthesis and Expression of Endothelial Cell Vitronectin Receptor Enhances Cancer Cell Adhesion.** Robert M. Lafrenie, Thomas J. Podor, Michael R. Buchanan, and F. William Orr.

2209 **Associated Effects of Bromocriptine on Neoplastic Progression of Mouse Mammary Preneoplastic Hyperplastic Alveolar Nodule Line C4 and on Hyperplastic Alveolar Nodule-infiltrating and Splenic Lymphocyte Function.** S. Jane Tsai, David A. Loeffler, and Gloria H. Heppner.

2216 **Alterations in Protein Kinase C in 1,2-Dimethylhydrazine Induced Colonic Carcinogenesis.** Patricia A. Craven and Frederick R. DeRubertis.

2222 **Adrenal Carcinoma Tumor Progression and Penultimate Cell Surface Oligosaccharides.** Man-shiow Jiang, Antonino Passaniti, Margaret B. Penno, and Gerald W. Hart.

2228 **Quantitation of Folic Acid Enhancement of Antifolate Synergism.** Yvette Gaumont, Roy L. Kisliuk, John C. Parsons, and William R. Greco.

2236 **Expression and Regulation of Retinoic Acid Receptors in Human Breast Cancer Cells.** Shaun D. Roman, Christine L. Clarke, Rosemary E. Hall, Ian E. Alexander, and Robert L. Sutherland.

2243 **Frequency and Diversity of p53 Mutations in Childhood Rhabdomyosarcoma.** Carolyn A. Felix, Cynthia Chavez Kappel, Tetsuya Mitsudomi, Marion M. Nau, Maria Tsokos, Gary D. Crouch, Perry D. Nisen, Naomi J. Winick, and Lee J. Helman.

2248 **Human Ovarian Epithelial Cancer Cells Cultured *in Vitro* Express Both Interleukin 1α and β Genes.** B-Y. Li, D. Mohanraj, M. C. Olson, M. Moradi, L. Twiggs, L. F. Carson, and S. Ramakrishnan.

2253 **Immortalization of Carcinogen-treated Syrian Hamster Embryo Cells Occurs Indirectly via an Induced Process.** Bart L. M. C. Bols, Jolanda M. Naaktgeboren, Paul H. M. Lohman, and Johannes W. I. M. Simons.

2257 **Time Dependence of the Selective Modulation of Cisplatin-induced Nephrotoxicity by WR2721 in the Mouse.** Marco Treskes, Epie Boven, Ulbe Holwerda, Herbert M. Pinedo, and Wim J. F. van der Vijgh.

2261 **Measurement of Gastrin and Transforming Growth Factor α Messenger RNA Levels in Colonic Carcinoma Cell Lines by Quantitative Polymerase Chain Reaction.** Graham S. Baldwin and Qun-Xing Zhang.

2268 **Effect of P-Glycoprotein Expression on the Accumulation and Cytotoxicity of Topotecan (SK&F 104864), a New Camptothecin Analogue.** Carolyn B. Hendricks, Eric K. Rowinsky, Louise B. Grochow, Ross C. Donehower, and Scott H. Kaufmann.

2279 **Cancer Induction in Mice by Feeding the Raw False Morel Mushroom *Gyromitra esculenta*.** Bela Toth, Kashinath Patil, Heikki Pyysalo, Carol Stessman, and Peter Gannett.

2285 **Cytogenetic Analysis of 124 Prospectively Ascertained Male Germ Cell Tumors.** Eduardo Rodriguez, Susan Mathew, Victor Reuter, David H. Ilson, George J. Bosl, and R. S. K. Chaganti.

2292 **First Establishment of a Human Monoclonal Antibody Directed to Sulfated Glycosphingolipids $S_{SulnLc4}$ and $S_{SulnLc6}$ from a Patient with Lung Cancer.** Masayuki Miyake, Toshihiko Taki, Reiji Kannagi, and Shigeki Hitomi.

2298 **Suppression of Tumor Promoter-induced Oxidative Events and DNA Damage *in Vivo* by Sarcophytol A: A Possible Mechanism of Antipromotion.** Huachen Wei and Krystyna Frenkel.

2304 **Incidence and Distribution of Experimental Metastases in Mutant Mice with Defective Organ Microenvironments (Genotypes *Sl*/*Sl*^{d} and *W*/*W*^{v}).** Francisco Arguello, Richard W. Furlanetto, Raymond B. Baggs, Brian T. Graves, Shari E. Harwell, Harvey J. Cohen, and Christopher N. Frantz.

2310 **Second Generation Anti-MUC1 Peptide Monoclonal Antibodies.** Pei-xiang Xing, Julie Prenzoska, Kaylene Quelch, and Ian F. C. McKenzie.

2318 **Suppression of Cellular Aggregation by High Levels of Episialin.** Marjolijn J. L. Ligtenberg, Femke Buijs, Hans L. Vos, and John Hilkens.

2325 **Prognostic Influence of HSP-27 Expression in Malignant Fibrous Histiocytoma: A Clinicopathological and Immunohistochemical Study.** Bernard Tétu, Bernard Lacasse, Henri-Louis Bouchard, Réal Lagacé, Jacques Huot, and Jacques Landry.

2329 **Specificity and Affinity of Monoclonal Antibodies against Carcinoembryonic Antigen.** Marius Nap, Marie-Louise Hammarström, Ole Börmer, Sten Hammarström, Christoph Wagener, Stefan Handt, Magali Schreyer, Jean-Pierre Mach, Franz Buchegger, Sabine von Kleist, Fritz Grunert, Patrick Seguin, Abraham Fuks, Ruth Holm, and Rolf Lamerz.

ADVANCES IN BRIEF

2340 **Wild-type but not Mutant *p53* Suppresses the Growth of Human Lung Cancer Cells Bearing Multiple Genetic Lesions.** Takashi Takahashi, David Carbone, Toshitada Takahashi, Marion M. Nau, Toyoaki Hida, Ilona Linnoila, Ryuzo Ueda, and John D. Minna.

2344 **Differences in Breast Cancer Risk Factors to *neu* (*c-erbB*-2) Protein Overexpression of the Breast Tumor.** Henriëtte F. Treurniet, Matti A. Rookus, Hans L. Peterse, Augustinus A. M. Hart, and Flora E. van Leeuwen.

2346 **Induction of Cytotoxicity by Photoexcited TiO_2 Particles.** Ruxiong Cai, Yoshinobu Kubota, Taro Shuin, Hideki Sakai, Kazuhito Hashimoto, and Akira Fujishima.

2349 **Cancer Cell Motility-inhibitory Protein in the Dunning Adenocarcinoma Model.** James L. Mohler, Elaine N. Broskie, Dipak J. Ranparia, Yousuf Sharief, William B. Coleman, and Gary J. Smith.

2353 **Inhibition of Tumor Cell Invasion by a Highly Conserved Peptide Sequence from the Matrix Metalloproteinase Enzyme Prosegment.** A. Melchiori, A. Albini, J. M. Ray, and W. G. Stetler-Stevenson.

MEETING REPORTS

2357 **Working Group on Mechanisms of Carcinogenesis and the Evaluation of Carcinogenic Risks.** Harri Vainio, Elisabeth Heseltine, Douglas McGregor, Lorenzo Tomatis, and Julian Wilbourne.

2362 **Eleventh Annual Sapporo Cancer Seminar—Connecting the Dots: Assembling the Pathways That Control Cell Division.** Ed Harlow.

2367 **Announcements**
Eighty-Third Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Future Annual Meetings of the AACR
Recent Deaths
Calendar of Events

2369 **Errata**
Z. Husain *et al.*, *51*: 4964–4970, 1991.
S. J. Garte, *52*: 1047–1050, 1992.

2370 **Author Index**

May 1, Number 9

PERSPECTIVES IN CANCER RESEARCH

2371 **The Evolution of Paradigms for the Management of Breast Cancer: A Personal Perspective.** Bernard Fisher.

2384 **Retinoic Acid Inhibition of Serum-induced *c-fos* Transcription in a Fibrosarcoma Cell Line.** Pamela Jaffey, Lee-Nien L. Chan, Jinyi Shao, Jürgen Schneider-Schaulies, and Teh-sheng Chan.

2389 **Resistance to 1-β-D-Arabinofuranosylcytosine in Human T-Lymphoblasts Mediated by Mutations within the Deoxycytidine Kinase Gene.** Janet K. Owens, Donna S. Shewach, Buddy Ullman, and Beverly S. Mitchell.

2394 **Anti-CD3 Monoclonal Antibody Treatment of Patients with CD3-Negative Tumors: A Phase 1A/B Study.** Walter J. Urba, Cynthia Ewel, William Kopp, John W. Smith II, Ronald G. Steis, Jonathan D. Ashwell, Stephen P. Creekmore, Jeffrey Rossio, Mario Sznol, William Sharfman, Robert Fenton, John Janik, Thelma Watson, Joy Beveridge, and Dan L. Longo.

2402 **Inhibition of 7,12-Dimethylbenz(*a*)anthracene-induced Tumors and DNA Adduct Formation in the Mammary Glands of Female Sprague-Dawley Rats by the Synthetic Organoselenium Compound, 1,4-Phenylenebis(methylene)selenocyanate.** Karam El-Bayoumy, Young-Heum Chae, Pramod Upadhyaya, Carol Meschter, Leonard A. Cohen, and Bandaru S. Reddy.

2408 **Pharmacokinetics and Toxicity of Continuous Infusion (6*S*)-Folinic Acid and Bolus 5-Fluorouracil in Patients with Advanced Cancer.** Edward M. Newman, Steven A. Akman, Jonathan S. Harrison, Lucille A. Leong, Kim A. Margolin, Robert J. Morgan, James W. Raschko, George Somlo, Chul W. Ahn, and James H. Doroshow.

2413 **Inhibition of Cancer Cell Growth by Calcium Channel Antagonists in the Athymic Mouse.** J. M. Taylor and R. U. Simpson.

2419 **Allelotype Analysis in Osteosarcomas: Frequent Allele Loss on 3q, 13q, 17p, and 18q.** Toshikazu Yamaguchi, Junya Toguchida, Takao Yamamuro, Yoshihiko Kotoura, Norihiko Takada, Noriyoshi Kawaguchi, Yasuhiko Kaneko, Yusuke Nakamura, Masao S. Sasaki, and Kanji Ishizaki.

2424 **Antitumor Activity of *N,N′*-Bis(ethyl)spermine Homologues against Human MALME-3 Melanoma Xenografts.** Ralph J. Bernacki, Raymond J. Bergeron, and Carl W. Porter.

2431 **Stealth Liposomes: An Improved Sustained Release System for 1-β-D-Arabinofuranosylcytosine.** Theresa M. Allen, Tarun Mehra, Christian Hansen, and Yeen Cheel Chin.

2440 **Locoregional Administration of Etoposide, but not of Interleukin 2, Facilitates Active Specific Immunization in Guinea Pigs with Advanced Carcinoma.** Anke M. E. Claessen, Elisabeth Bloemena, Herman Bril, Chris J. L. M. Meijer, and Rik J. Scheper.

2447 **Pesticides and Other Agricultural Risk Factors for Non-Hodgkin's Lymphoma among Men in Iowa and Minnesota.** Kenneth P. Cantor, Aaron Blair, George Everett, Robert Gibson, Leon F. Burmeister, Linda M. Brown, Leonard Schuman, and Fred R. Dick.

2456 **Modulation of O^6-Alkylguanine-DNA Alkyltransferase-mediated Carmustine Resistance Using Streptozotocin: A Phase I Trial.** Timothy J. Panella, David C. Smith, S. Clifford Schold, Miriam P. Rogers, Eric P. Winer, Robert L. Fine, Jeffrey Crawford, James E. Herndon II, and Donald L. Trump.

2460 **Amplification and Expression of the *bcl-1* Gene in Human Solid Tumor Cell Lines.** John B. Faust and Timothy C. Meeker.

2464 **Carcinogenic Potency of Alkylating Agents in Rodents and Humans.** Robert L. Dedrick and Paul F. Morrison.

2468 **Heterogeneity among Epstein-Barr Virus-seropositive Donors in the Generation of Immunoblastic B-Cell Lymphomas in SCID Mice Receiving Human Peripheral Blood Leukocyte Grafts.** Gastón R. Picchio, Ryo Kobayashi, Marybeth Kirven, Stephen M. Baird, Thomas J. Kipps, and Donald E. Mosier.

2478 **Allelotype of Non-Small Cell Lung Carcinoma—Comparison between Loss of Heterozygosity in Squamous Cell Carcinoma and Adenocarcinoma.** Eiju Tsuchiya, Yusuke Nakamura, Siu-Yuhe Weng, Ken Nakagawa, Shigehiro Tsuchiya, Haruo Sugano, and Tomoyuki Kitagawa.

2482 **Nuclear Type II Sites and Malignant Cell Proliferation: Inhibition by 2,6-Bis-benzylidenecyclohexanones.** Barry M. Markaverich, Thomas H. Schauweker, Rebecca R. Gregory, Manju Varma, Francis S. Kittrell, Daniel Medina, and Rajender S. Varma.

2489 **Transcriptional and Posttranscriptional Activation of Urokinase Plasminogen Activator Gene Expression in Metastatic Tumor Cells.** Beric R. Henderson, William P. Tansey, Susan M. Phillips, Ian A. Ramshaw, and Richard F. Kefford.

2497 **Binding Parameters and Idiotypic Profile of the Whole Immunoglobulin and Fab′ Fragments of Murine Monoclonal Antibody to Distinct Determinants of the Human High Molecular Weight-Melanoma Associated Antigen.** Massimo Temponi, Allen M. Gold, and Soldano Ferrone.

2504 **Unhydrolyzable Analogues of Adenosine 3′:5′-Monophosphate Demonstrating Growth Inhibition and Differentiation in Human Cancer Cells.** Hiroshi Yokozaki, Giampaolo Tortora, Stefano Pepe, Erik Maronde, Hans-Gottfried Genieser, Bernd Jastorff, and Yoon S. Cho-Chung.

2509 **Tumor Cell Kinetics following Antineoplastic Ether Phospholipid Treatment.** Paola Principe, Carole Sidoti, and Pierre Braquet.

2516 **Selective Loss of Glucocorticoid-dependent Responses in a Variant of the DDT_1MF-2 Tumor Cell Line.** William J. Hendry III, Reza Hakkak, and Lawrence E. Cornett.

2523 **Molecular Analysis of Deletion of the Short Arm of Chromosome 9 in Human Gliomas.** Olufunmilayo I. Olopade, Robert B. Jenkins, David T. Ransom, Kathleen Malik, Helen Pomykala, Tsutomu Nobori, Janet M. Cowan, Janet D. Rowley, and Manuel O. Diaz.

CONTENTS OF VOLUME 52

2530 **Induction of Expression of Genes Encoding Components of the Respiratory Burst Oxidase during Differentiation of Human Myeloid Cell Lines Induced by Tumor Necrosis Factor and γ-Interferon.** Jean W. Gupta, Marek Kubin, Lisa Hartman, Marco Cassatella, and Giorgio Trinchieri.

2538 **Sustained Release Formulations of Luteinizing Hormone-releasing Hormone Antagonist SB-75 Inhibit Proliferation and Enhance Apoptotic Cell Death of Human Prostate Carcinoma (PC-82) in Male Nude Mice.** Tommie W. Redding, Andrew V. Schally, Sinisa Radulovic, Slobodan Milovanovic, Karoly Szepeshazi, and John T. Isaacs.

2545 **Interaction of an α-Melanocyte-stimulating Hormone-Diphtheria Toxin Fusion Protein with Melanotropin Receptors in Human Melanoma Metastases.** Jeffrey B. Tatro, Zilong Wen, Margaret L. Entwistle, Michael B. Atkins, Thomas J. Smith, Seymour Reichlin, and John R. Murphy.

2549 **Reactivation of Insulin-like Growth Factor II during Hepatocarcinogenesis in Transgenic Mice Suggests a Role in Malignant Growth.** Peter Schirmacher, W. A. Held, D. Yang, F. V. Chisari, Yusuf Rustum, and C. E. Rogler.

2557 **Phosphatase Inhibitors Modulate the Growth-regulatory Effects of Human Tumor Necrosis Factor on Tumor and Normal Cells.** Klara Totpal, Sudha Agarwal, and Bharat B. Aggarwal.

2563 **Tumor Selective Reactivity of a Monoclonal Antibody Prepared against a Recombinant Peptide Derived from the DF3 Human Breast Carcinoma-associated Antigen.** Lucien Perrey, Daniel F. Hayes, Peter Maimonis, Miyako Abe, Carl O'Hara, and Donald W. Kufe.

2569 **Radioimmunoscintigraphy of Head and Neck Cancer Using ^{99m}Tc-labeled Monoclonal Antibody E48 F(ab')$_2$.** Guus A. M. S. van Dongen, Hein Leverstein, Jan C. Roos, Jasper J. Quak, Michiel W. M. van den Brekel, Arthur van Lingen, Harrie J. M. Martens, Jonas A. Castelijns, Gerard W. M. Visser, Chris J. L. M. Meijer, Gerrit J. J. Teule, and Gordon B. Snow.

2575 **Nephroblastomas in the Japanese Eel, *Anguilla japonica* Temminck and Schlegel.** Prince Masahito, Takatoshi Ishikawa, Nobuaki Okamoto, and Haruo Sugano.

2580 **Tumor-inhibitory Monoclonal Antibodies to the HER-2/Neu Receptor Induce Differentiation of Human Breast Cancer Cells.** Sarah S. Bacus, Ilana Stancovski, Eliezer Huberman, Dot Chin, Esther Hurwitz, Gordon B. Mills, Axel Ullrich, Michael Sela, and Yosef Yarden.

2590 **Metaphase and Interphase Cytogenetics with Alu-PCR-amplified Yeast Artificial Chromosome Clones Containing the *BCR* Gene and the Protooncogenes *c-raf-1*, *c-fms*, and *c-erbB-2*.** Christoph Lengauer, Harold C. Riethman, Michael R. Speicher, Masafumi Taniwaki, David Konecki, Eric D. Green, Reinhard Becher, Maynard V. Olson, and Thomas Cremer.

2597 **c-*myc*, c-*erbB*-2, and Ki-67 Expression in Normal Breast Tissue and in Invasive and Noninvasive Breast Carcinoma.** Zlatko P. Pavelic, Ljiljana Pavelic Elyse E. Lower, Markus Gapany, Sabina Gapany, Edward A. Barker, and Harvey D. Preisler.

2603 **Quantitation of Human Tumor-reactive Monoclonal Antibody 16.88 in the Circulation and Localization of 16.88 in Colorectal Metastatic Tumor Tissue Using Murine Antiidiotypic Antibodies.** W. C. Taddei-Peters, M. V. Haspel, P. Vente, J. L. Murray, K. R. Cleary, B. Levin, E. M. Paris, N. Pomato, J. H. Murray, D. Weidman, M. G. Hanna, Jr., and R. P. McCabe.

ADVANCES IN BRIEF

2610 **p53 and Kirsten-*ras* Mutations in Human Mesothelioma Cell Lines.** R. A. Metcalf, J. A. Welsh, W. P. Bennett, M. B. Seddon, T. A. Lehman, K. Pelin, K. Linnainmaa, L. Tammilehto, K. Mattson, B. I. Gerwin, and C. C. Harris.

2616 **Frequent Loss of Expression of the Potential Tumor Suppressor Gene *DCC* in Ductal Pancreatic Adenocarcinoma.** Martin W. Höhne, Marc-E. Halatsch, Georg F. Kahl, and Rolf J. Weinel.

2620 **Accelerated Declining Tendency of Human T-Cell Leukemia Virus Type I Carrier Rates among Younger Blood Donors in Kumamoto, Japan.** Shigeru Oguma, Yumiko Imamura, Yukihiko Kusumoto, Yoko Nishimura, Kazunari Yamaguchi, Kiyoshi Takatsuki, Shinkan Tokudome, and Minoru Okuma.

2624 **Detection of Frequent Allelic Loss on Proximal Chromosome 17q in Sporadic Breast Carcinoma Using Microsatellite Length Polymorphisms.** P. A. Futreal, P. Söderkvist, J. R. Marks, J. D. Iglehart, C. Cochran, J. C. Barrett, and R. W. Wiseman.

2628 **Soluble Intercellular Adhesion Molecule 1 Is Released by Human Melanoma Cells and Is Associated with Tumor Growth in Nude Mice.** Raffaella Giavazzi, Renato G. S. Chirivi, Angela Garofalo, Alessandro Rambaldi, Ian Hemingway, Rod Pigott, and Andy J. H. Gearing.

2631 **Announcements**
Eighty-Third Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Future Annual Meetings of the AACR
Recent Deaths
Calendar of Events

2634 **Author Index**

May 1, Number 9, Supplement

Acknowledgment to Supplement Reviewers 2638s

Overview
James L. Mulshine 2639s

Methods and Strategies in Lung Cancer Control
Andre Castonguay 2641s

New Approaches to Treating Early Lung Cancer
Jack A. Roth 2652s

Application of Molecular Genetics to the Early Diagnosis and Screening of Lung Cancer
Michael J. Birrer and Powel H. Brown 2658s

Clinical Significance of ras Oncogene Activation in Human Lung Cancer
Sjoerd Rodenhuis and Robert J. C. Slebos 2665s

Primary Lung Tumors in Mice: An Experimentally Manipulable Model of Human Adenocarcinoma
Alvin M. Malkinson 2670s

Induction and Spontaneous Regression of Intense Pulmonary Neuroendocrine Cell Differentiation in a Model of Preneoplastic Lung Injury
Mary E. Sunday and Christopher G. Willett 2677s

Bronchial and Pulmonary Carcinogenesis at Focal Sites in Dogs and Hamsters
John R. Benfield and William G. Hammond 2687s

Lung Cancer Detection and Prevention: Evidence for an Interaction between Smoking and Genetic Predisposition
Thomas A. Sellers, John D. Potter, Joan E. Bailey-Wilson, Stephen S. Rich, Henry Rothschild, and Robert C. Elston 2694s

DNA and Hemoglobin Adducts as Markers of Metabolic Activation of Tobacco-specific Carcinogens
Peter G. Foiles, Sharon E. Murphy, Lisa A. Peterson, Steven G. Carmella, and Stephen S. Hecht ... 2698s

Chromosome Abnormalities in Human Non-Small Cell Lung Cancer
Joseph R. Testa and Jill M. Siegfried 2702s

Determination of Biomarkers for Intermediate End Points in Chemoprevention Trials
Jin S. Lee, Scott M. Lippman, Waun K. Hong, Jae Y. Ro, Sun Y. Kim, Reuben Lotan, and Walter N. Hittelman 2707s

Considerations in Bringing a Cancer Biomarker to Clinical Application
Melvyn S. Tockman, Prabodh K. Gupta, Norman J. Pressman, and James L. Mulshine 2711s

New Potential Chemopreventive Agents for Lung Carcinogenesis of Tobacco-specific Nitrosamine
Fung-Lung Chung, Mark A. Morse, and Karin I. Eklind 2719s

Nitrosamine-induced Lung Carcinogenesis and Ca^{2+}/Calmodulin Antagonists
Hildegard M. Schüller 2723s

Urinary Levels of Bombesin-like Peptides in Asymptomatic Cigarette Smokers: A Potential Risk Marker for Smoking-related Diseases
Samuel M. Aguayo, Talmadge E. King, Jr., Madeleine A. Kane, Karen M. Sherritt, Wayne Silvers, Louise M. Nett, Thomas L. Petty, and York E. Miller 2727s

Neuromedin B Is Present in Lung Cancer Cell Lines
G. Giaccone, J. Battey, A. F. Gazdar, H. Oie, M. Draoui, and T. W. Moody 2732s

Growth of Small Cell Lung Cancer Cells: Stimulation by Multiple Neuropeptides and Inhibition by Broad Spectrum Antagonists in Vitro and in Vivo
Tariq Sethi, Simon Langdon, John Smyth, and Enrique Rozengurt 2737s

The Correct Dose: Pharmacologically Guided End Point for Anti-Growth Factor Therapy
James L. Mulshine, Noriyuki Shuke, Farhad Daghighian, Jorge Carrasquillo, Bimal Ghosh, Thomas Walsh, Ingalill Avis, James C. Reynolds, Frank Cuttitta, and Steven M. Larson 2743s

Early Intervention in Cancer Using Monoclonal Antibodies and Other Biological Ligands: Micropharmacology and the "Binding Site Barrier"
John N. Weinstein and William van Osdol 2747s

The Clinical Evaluation of Cancer Chemoprevention Agents: Defining and Contrasting Phase I, II, and III Objectives
Gary E. Goodman 2752s

Chemoprevention Strategies for Lung and Upper Aerodigestive Tract Cancer
Steven E. Benner, Scott M. Lippman, and Waun Ki Hong 2758s

CONTENTS OF VOLUME 52

Preclinical Research in Early Lung Cancer: Breakout Group Report
M. Mabry, T. W. Moody, and S. B. Baylin 2764s

Diagnostic Research: Breakout Group Report
James L. Mulshine and Melvyn S. Tockman 2766s

Intervention Approaches in Early Lung Cancer and Premalignant Disease: Breakout Group Report
Daniel C. Ihde and Scott Lippman 2767s

List of Participants 2769s

May 15, Number 10

2771 Therapy of an Animal Model of Human Gastric Cancer Using a Combination of Anti-*erb*B-2 Monoclonal Antibodies. Philip G. Kasprzyk, Sun Uk Song, Pier Paolo Di Fiore, and C. Richter King.

2777 Clinical Implications of K-*ras* Mutations in Malignant Epithelial Tumors of the Endometrium. Hidemitsu Mizuuchi, Suhail Nasim, Ryuichi Kudo, Steven G. Silverberg, Samuel Greenhouse, and Carleton T. Garrett.

2782 Development and Characterization of a WEHI-3B D$^+$ Monomyelocytic Leukemia Cell Line Resistant to Novobiocin and Cross-Resistant to Other Topoisomerase II-targeted Drugs. Germana Rappa, Aurelio Lorico, and Alan C. Sartorelli.

2791 Evaluation of Metastatic Human Tumor Burden and Response to Therapy in a Nude Mouse Xenograft Model Using a Molecular Probe for Repetitive Human DNA Sequences. Robert H. Shoemaker, Anne M. Smythe, Lin Wu, Michael S. Balaschak, and Michael R. Boyd.

2797 Cinchonine, a Potent Efflux Inhibitor to Circumvent Anthracycline Resistance *in Vivo*. Philippe Genne, Marie Thérèse Dimanche-Boitrel, Roland Yves Mauvernay, Gilles Gutierrez, Olivier Duchamp, Jean-Michel Petit, Francois Martin, and Bruno Chauffert.

2802 Cell Cycle Analysis of p26-BCL-2 Protein Levels in Proliferating Lymphoma and Leukemia Cell Lines. John C. Reed, Shigeki Tanaka, and Michael Cuddy.

2806 Perturbations of Cellular Acylation Processes by the Synthetic Alkyl-lysophospholipid 1-*O*-Octadecyl-2-*O*-methylglycero-3-phosphocholine Do Not Correlate with Inhibition of Proliferation of MCF7 and T84 Cell Lines. Xiaoli Lu and Gilbert Arthur.

2813 The Differential Susceptibility of A427 and A549 Cell Lines to the Growth-inhibitory Effects of ET-18-OCH$_3$ Does Not Correlate with the Relative Effects of the Alkyl-lysophospholipid on the Incorporation of Fatty Acids into Cellular Phospholipids. Xiaoli Lu and Gilbert Arthur.

2818 Antitumor Quinolones with Mammalian Topoisomerase II Mediated DNA Cleavage Activity. Yoshinori Yamashita, Tadashi Ashizawa, Makoto Morimoto, Jiro Hosomi, and Hirofumi Nakano.

2823 Multiple Oncogenes and Tumor Suppressor Genes Are Structurally and Functionally Intact during Hepatocarcinogenesis in Hepatitis B Virus Transgenic Mice. Claudio Pasquinelli, Kasibhatla Bhavani, and Francis V. Chisari.

2830 Murine Pharmacokinetics and Metabolism of Penclomedine [3,5-Dichloro-2,4-dimethoxy-6-(trichloromethyl)pyridine, NSC 338720]. Joel M. Reid, Dane A. Mathiesen, Linda M. Benson, Mary J. Kuffel, and Matthew M. Ames.

2835 Selective Inhibition of Phosphatidylinositol Phospholipase C by Cytotoxic Ether Lipid Analogues. G. Powis, M. J. Seewald, C. Gratas, D. Melder, J. Riebow, and E. J. Modest.

2841 Effects of Liarozole, a New Antitumoral Compound, on Retinoic Acid-induced Inhibition of Cell Growth and on Retinoic Acid Metabolism in MCF-7 Human Breast Cancer Cells. Walter Wouters, Jacky van Dun, Ann Dillen, Marie-Claire Coene, Willy Cools, and Roland De Coster.

2847 Expression of Nuclear Envelope Lamins A and C in Human Myeloid Leukemias. Scott H. Kaufmann.

2854 Thermotolerance in the Absence of Induced Heat Shock Proteins in a Murine Lymphoma. Barbara Fisher, Peggy Kraft, George M. Hahn, and Robin L. Anderson.

2862 Identification and Characterization of a Specific Autoantiphosphatidylinositol Immune Response during the Time Course of Benzo(*a*)-pyrene-induced Malignant Tumors in Female Sprague-Dawley Rats. S. Faiderbe, J. L. Chagnaud, and M. Geffard.

2866 *In Vitro* Mutational Specificity of Cisplatin in the Human Hypoxanthine Guanine Phosphoribosyltransferase Gene. Neal F. Caviello, James A. Swenberg, and Thomas R. Skopek.

2874 Relationship of VP-16 to the Classical Multidrug Resistance Phenotype. Maxwell Sehested, Ellen Friche, Peter Buhl Jensen, and Erland J. F. Demant.

2880 Inhibition of Friend Leukemia Cell Visceral Metastases by a New Monoclonal Antibody and Role of the Immune System of the Host in Its Action. Arturo Sala, Ion Gresser, Daniele Chassoux, Chantal Maury, Laura Santodonato, Pierre Eid, Marie-Therese Maunoury, Stefano Barca, Maurizio Cianfriglia, and Filippo Belardelli.

2890 Metabolic Properties and Photosensitizing Responsiveness of Mono-L-aspartyl Chlorin e_6 in a Mouse Tumor Model. Angela Ferrario, David Kessel, and Charles J. Gomer.

2894 Phase I and Pharmacokinetic Study of Rhizoxin. D. Bissett, M. A. Graham, A. Setanoians, G. A. Chadwick, P. Wilson, I. Koier, R. Henrar, G. Schwartsmann, J. Cassidy, S. B. Kaye, and D. J. Kerr.

2899 Correlation between Dihydropyrimidine Dehydrogenase Activity in Peripheral Mononuclear Cells and Systemic Clearance of Fluorouracil in Cancer Patients. Ronald A. Fleming, Gerard Milano, Antoine Thyss, Marie-Christine Etienne, Nicole Renée, Maurice Schneider, and Francois Demard.

2903 *ras* Gene Mutations as a Prognostic Marker in Adenocarcinoma of the Human Lung without Lymph Node Metastasis. Kenji Sugio, Teruyoshi Ishida, Hideki Yokoyama, Takashi Inoue, Keizo Sugimachi, and Takehiko Sasazuki.

2907 Intracellular Catabolism of Radiolabeled Anti-μ Antibodies by Malignant B-Cells. Francis Geissler, Susan K. Anderson, Prasanna Venkatesan, and Oliver Press.

2916 Decreased Expression of E-Cadherin in the Progression of Rat Prostatic Cancer. Marion J. G. Bussemakers, Reindert J. A. van Moorselaar, Laurence A. Giroldi, Tomohiko Ichikawa, John T. Isaacs, Masatoshi Takeichi, Frans M. J. Debruyne, and Jack A. Schalken.

2923 Mucin Gel Formed by Tumorigenic Squamous Lung Carcinoma Cells Has Le^a-X Oligosaccharides and Excludes Antibodies from Underlying Cells. Patricia L. Stranahan, Randy B. Howard, Oswald Pfenninger, Michael E. Cowen, Michael R. Johnston, and David E. Pettijohn.

2931 *In Vivo* Circumvention of Human Colon Carcinoma Resistance to Bleomycin. Jitesh P. Jani, Jehangir S. Mistry, Geoffrey Morris, Paul Davies, John S. Lazo, and Said M. Sebti.

2938 A Phenotypically and Karyotypically Stable Human Thyroid Epithelial Line Conditionally Immortalized by SV40 Large T Antigen. Fiona S. Wyllie, Jane A. Bond, Tim Dawson, Denise White, Rose Davies, and David Wynford-Thomas.

2946 Persistent Clonal Areas and Clonal Expansion in Barrett's Esophagus. Wendy H. Raskind, Thomas Norwood, Douglas S. Levine, Rodger C. Haggitt, Peter S. Rabinovitch, and Brian J. Reid.

2951 Expression Pattern of α-Protein Kinase C in Human Astrocytomas Indicates a Role in Malignant Progression. Deborah L. Benzil, Sydney D. Finkelstein, Mel H. Epstein, and Paul W. Finch.

2957 Expression of N-*myc*, c-*myc*, and *MDR-1* Proteins in Newly Established Neuroblastoma Cell Lines: A Study by Immunofluorescence Staining and Flow Cytometry. Yair Gazitt, Yun Ju He, Lee Chang, Shannon Koza, Diann Fisk, and John Graham-Pole.

2966 Extracellular Matrix Receptors and Mouse Skin Carcinogenesis: Altered Expression Linked to Appearance of Early Markers of Tumor Progression. Tamar Tennenbaum, Stuart H. Yuspa, Atul Grover, Vincent Castronovo, Mark E. Sobel, Yoshihiko Yamada, and Luigi M. De Luca.

ADVANCES IN BRIEF

2977 Hepatocarcinogenicity of Dehydroepiandrosterone in the Rat. M. Sambasiva Rao, V. Subbarao, Anjana V. Yeldandi, and Janardan K. Reddy.

2980 Amplification and Expression of the Human Cyclin D Gene in Esophageal Cancer. Wei Jiang, Scott M. Kahn, Naohiro Tomita, Yu-Jing Zhang, Shih-Hsin Lu, and I. Bernard Weinstein.

2984 Inherited *p53* Gene Mutations in Breast Cancer. David Sidransky, Takashi Tokino, Kathy Helzlsouer, Barbara Zehnbauer, Greg Rausch, Bonnie Shelton, Laura Prestigiacomo, Bert Vogelstein, and Nancy Davidson.

2987 *p53* Mutations Are Associated with 17p Allelic Loss in Grade II and Grade III Astrocytoma. Andreas von Deimling, Robert H. Eibl, Hiroko Ohgaki, David N. Louis, Klaus von Ammon, Iver Petersen, Paul Kleihues, Richard Y. Chung, Otmar D. Wiestler, and Bernd R. Seizinger.

2991 The Retinoblastoma Gene in Breast Cancer: Allele Loss Is Not Correlated with Loss of Gene Protein Expression. Åke Borg, Qiu-Xia Zhang, Per Alm, Håkan Olsson, and Gunilla Sellberg.

2995 Selective Mutation of Codons 204 and 213 of the *p53* Gene in Rat Tumors Induced by Alkylating *N*-Nitroso Compounds. Hiroko Ohgaki, Gordon C. Hard, Norio Hirota, Akihiko Maekawa, Michihito Takahashi, and Paul Kleihues.

LETTER TO THE EDITOR

2999 Correspondence re: G. Cimino *et al.*, Cloning of *ALL-1*, the Locus Involved in Leukemias with the t(4;11)(q21;q23), t(9;11)(p22;q23), and t(11;19)(q23;p13) Chromosome Translocations. Cancer Res., *51*: 6712-6714, 1991. Janet D. Rowley and Manuel O. Diaz.

3000 Announcements
Eighty-Third Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Future Annual Meetings of the AACR
Recent Deaths
Calendar of Events

3003 Author Index

June 1, Number 11

3005 Polyinosinic-Polycytidylic Acid Complexed with Poly-L-lysine and Carboxymethylcellulose in Combination with Interleukin 2 in Patients with Cancer: Clinical and Immunological Effects. Cynthia H. Ewel, Walter J. Urba, William C. Kopp, John W. Smith II, Ronald G. Steis, Jeffrey L. Rossio, Dan L. Longo, Mary Jane Jones, W. Gregory Alvord, Carl M. Pinsky, Joy M. Beveridge, Karen L. McNitt, and Stephen P. Creekmore.

3011 Stimulation of Anchorage-independent Cell Growth by Endothelin in NRK 49F Cells. Masatoshi Kusuhara, Ken Yamaguchi, Masaru Kuranami, Ai Suzaki, Shiro Ishikawa, Hanlim Moon, Isamu Adachi, Shingo Hori, and Shunnosuke Handa.

3015 Modulation of Trenimon-induced Cytotoxicity by DT-Diaphorase in Isolated Rat Hepatocytes under Aerobic *versus* Hypoxic Conditions. José M. Silva, D. N. Ramakrishna Rao, and Peter J. O'Brien.

3022 The Antitumor Effects of the Quinoline-3-carboxamide, Linomide, on Dunning R-3327 Rat Prostatic Cancers. Tomohiko Ichikawa, John C. Lamb, Per I. Christensson, Beryl Hartley-Asp, and John T. Isaacs.

3029 Multidrug-resistant Phenotype of Disease-oriented Panels of Human Tumor Cell Lines Used for Anticancer Drug Screening. Lin Wu, Anne M. Smythe, Sherman F. Stinson, Leslie A. Mullendore, Anne Monks, Dominic A. Scudiero, Kenneth D. Paull, Antonis D. Koutsoukos, Lawrence V. Rubinstein, Michael R. Boyd, and Robert H. Shoemaker.

3035 Comparative Metabolism *in Vitro* of a Novel Carcinogenic Polycyclic Aromatic Hydrocarbon, 1,2,3,4-Tetrahydro-7,12-dimethylbenz[*a*]anthracene, and Its Two Regioisomeric B-Ring Fluoro Analogues. Stephen J. Rinderle, Shaun D. Black, Pradeep K. Sharma, and Donald T. Witiak.

3043 Endogenous Receptor-bound Urokinase Mediates Tissue Invasion of the Human Lung Carcinoma Cell Lines A549 and Calu-1. A. Bruckner, A. E. Filderman, J. C. Kirchheimer, B. R. Binder, and H. G. Remold.

3048 Herbal Medicine Use, Epstein-Barr Virus, and Risk of Nasopharyngeal Carcinoma. Allan Hildesheim, Sheila West, Ernesto DeVeyra, Maria F. De Guzman, Adonis Jurado, Carol Jones, Joko Imai, and Yorio Hinuma.

3052 Granulocyte Colony-stimulating Factor Receptors on Human Acute Leukemia: Biphenotypic Leukemic Cells Possess Granulocyte Colony-stimulating Factor Receptors. Kazuya Shimoda, Seiichi Okamura, Naoki Harada, Wataru Ikematsu, Seiji Kondo, Chiyuki Kawasaki, Takeshi Tanaka, Tetsuya Etou, Kouichi Akashi, Takashi Okamura, Tsunefumi Shibuya, Mine Harada, and Yoshiyuki Niho.

3056 Efficacy of an Anti-CD7-Ricin A Chain Immunoconjugate in a Novel Murine Model of Human T-Cell Leukemia. Dianne M. Fishwild, Sharon Aberle, Susan L. Bernhard, and Ada H. C. Kung.

3063 Changes in Actin and Actin-binding Proteins during the Differentiation of HL-60 Leukemia Cells. Mun-Fai Leung, Thomas S. Lin, and Alan C. Sartorelli.

3067 Increased Expression of Human Ribosomal Phosphoprotein P0 Messenger RNA in Hepatocellular Carcinoma and Colon Carcinoma. Graham F. Barnard, Raymond J. Staniunas, Shideng Bao, Ken-ichi Mafune, Glenn D. Steele, Jr., John L. Gollan, and Lan Bo Chen.

CONTENTS OF VOLUME 52

3073 **Influence of the H-*ras* Oncogene on Radiation Responses of a Rat Rhabdomyosarcoma Cell Line.** A. F. Hermens and P. A. J. Bentvelzen.

3083 **Overexpression of the *ras*-related *rab*2 Gene Product in Peripheral Blood Mononuclear Cells from Patients with Hematological and Solid Neoplasms.** Stéphane Culine, Nicole Honoré, Armand Tavitian, and Birgitta Olofsson.

3089 **Expression of the Fr[illegible]dermal Growth Factor Receptor in Human Small Cell Lung Cancer Cell Lines.** Lars Damstrup, Kåre Rygaard, Mogens Spang-Thomsen, and Hans Skovgaard Poulsen.

3094 **A Third Wilms' Tumor Locus on Chromosome 16q.** Marion A. Maw, Paul E. Grundy, Lynn J. Millow, Michael R. Eccles, Roseanne S. Dunn, Peter J. Smith, Andrew P. Feinberg, Dave J. Law, Malcolm C. Paterson, Perry E. Telzerow, David F. Callen, Andrew D. Thompson, Robert I. Richards, and Anthony E. Reeve.

3099 **Frequent Loss of Heterozygosity at the *DCC* Locus in Gastric Cancer.** Shinya Uchino, Hitoshi Tsuda, Masayuki Noguchi, Jun Yokota, Masaaki Terada, Takao Saito, Michio Kobayashi, Takashi Sugimura, and Setsuo Hirohashi.

3103 **Parathyroid Hormone-like Peptide Shares Features with Members of the Early Response Gene Family: Rapid Induction by Serum, Growth Factors, and Cycloheximide.** E. Tracey Allinson and Daniel J. Drucker.

3110 **Characterization of a Cisplatin-resistant Human Ovarian Carcinoma Cell Line Expressing Cross-Resistance to 5-Fluorouracil but Collateral Sensitivity to Methotrexate.** Bridget T. Hill, Sharon A. Shellard, Louise K. Hosking, Wolfram C. M. Dempke, Anne Marie J. Fichtinger-Schepman, Takeshi Tone, Kevin J. Scanlon, and Richard D. H. Whelan.

3119 **Sensitization of Human Cervical Carcinoma Cells to *cis*-Diammine-dichloroplatinum(II) by Bryostatin 1.** Alakananda Basu and John S. Lazo.

3125 **Differential Effects of Amsacrine and Epipodophyllotoxins on Topoisomerase II Cleavage in the Human *c-myc* Protooncogene.** Yves Pommier, Ann Orr, Kurt W. Kohn, and Jean-François Riou.

3131 **Antibody Drug Carrier for Immunotherapy of Superficial Bladder Cancer: Ultrastructural Studies.** Etienne de Harven, Yves Fradet, John G. Connolly, Wedad Hanna, Shaomu He, Yanchun Wang, Bernard C. K. Choi, Roy McGroarty, George Bootsma, Aina Tilups, and Hilary Christensen.

3138 **Sialyl Lewis' Antigen as Defined by Monoclonal Antibody AM-3 Is a Marker of Dysplasia in the Colonic Adenoma-Carcinoma Sequence.** Franz-Georg Hanisch, Christoph Hanski, and Akira Hasegawa.

3145 **Development of an *in Vitro* Model to Study Carcinogen-induced Neoplastic Progression of Initiated Mouse Epidermal Cells.** David Morgan, David Welty, Adam Glick, David Greenhalgh, Henry Hennings, and Stuart H. Yuspa.

3157 **Drug Transport Mechanisms in HL60 Cells Isolated for Resistance to Adriamycin: Evidence for Nuclear Drug Accumulation and Redistribution in Resistant Cells.** David Marquardt and Melvin S. Center.

3164 **Role of the Alveolar Type II Cell in the Development and Progression of Pulmonary Tumors Induced by 4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone in the A/J Mouse.** Steven A. Belinsky, Theodora R. Devereux, Julie F. Foley, Robert R. Maronpot, and Marshall W. Anderson.

3174 **Acquisition of a Tumorigenic Phenotype by a Rat Ventral Prostate Epithelial Cell Line Expressing a Transfected Activated *neu* Oncogene.** Robert A. Sikes and Leland W. K. Chung.

3182 **Potential Autocrine Role of Insulin-like Growth Factor II during Suramin-induced Differentiation of Human Colonic Adenocarcinoma Cell Line HT29-D4.** Gilbert J. Pommier, Françoise L. Garrouste, Fatima El Atiq, Monique Roccabianca, Jacques L. Marvaldi, and Maryse M. Remacle-Bonnet.

3189 **Antitumor Effects of B3-PE and B3-LysPE40 in a Nude Mouse Model of Human Breast Cancer and the Evaluation of B3-PE Toxicity in Monkeys.** Lee H. Pai, Janendra K. Batra, David J. FitzGerald, Mark C. Willingham, and Ira Pastan.

3194 **Tumor Necrosis Factor as an Autocrine Growth Factor for Neuroblastoma.** Evelyne Goillot, Valérie Combaret, Ruth Ladenstein, Daniel Baubet, Jean-Yves Blay, Thierry Philip, and Marie C. Favrot.

3201 **Ganglioside, Adhesion Molecule, and HLA Antigen Expression in Basal Cell Carcinoma Lesions.** Toshiro Kageshita, Tomomichi Ono, Shyunji Hirai, Akira Yoshii, Toru Kimura, Hideki Nakakuma, Kentaro Horikawa, Kiyoshi Takatsuki, and Soldano Ferrone.

3208 ***In Vivo* Efficacy of a Novel Inhibitor of Selected Signal Transduction Pathways Including Calcium, Arachidonate, and Inositol Phosphates.** Elise C. Kohn, Mary Ann Sandeen, and Lance A. Liotta.

3213 **Platelet-derived Growth Factor and Its Receptors in Human Glioma Tissue: Expression of Messenger RNA and Protein Suggests the Presence of Autocrine and Paracrine Loops.** Monica Hermanson, Keiko Funa, Magdalena Hartman, Lena Claesson-Welsh, Carl-Henrik Heldin, Bengt Westermark, and Monica Nistér.

ADVANCES IN BRIEF

3220 ***p53* Mutations in Human Hepatocellular Carcinomas from Germany.** Stefan Kress, Uli-Rudiger Jahn, Albrecht Buchmann, Peter Bannasch, and Michael Schwarz.

3224 **Amphiregulin Messenger RNA Is Elevated in Psoriatic Epidermis and Gastrointestinal Carcinomas.** Paul W. Cook, Mark R. Pittelkow, Winifred W. Keeble, Ramona Graves-Deal, Robert J. Coffey, Jr., and Gary D. Shipley.

3228 **Radiosensitization of Human Tumor Cells with Levamisole.** Cherie J. Hayostek and Thomas M. Koval.

3231 **The *APC* Gene, Responsible for Familial Adenomatous Polyposis, Is Mutated in Human Gastric Cancer.** Akira Horii, Shuichi Nakatsuru, Yasuo Miyoshi, Shigetoshi Ichii, Hiroki Nagase, Yo Kato, Akio Yanagisawa, and Yusuke Nakamura.

3234 **Screening for Germ Line *TP53* Mutations in Breast Cancer Patients.** Anne-Lise Børresen, Tone Ikdahl Andersen, Judy Garber, Noële Barbier-Piraux, Steinunn Thorlacius, Jorunn Eyfjörd, Lars Ottestad, Birgitte Smith-Sørensen, Eivind Hovig, David Malkin, and Stephen H. Friend.

3237 **Nicotinamide Can Lower Tumor Interstitial Fluid Pressure: Mechanistic and Therapeutic Implications.** Intae Lee, Yves Boucher, and Rakesh K. Jain.

3241 **Increased Accumulation of Drugs in Multidrug-resistant Cells Induced by Liposomes.** Leonard Warren, Jean-Claude Jardillier, Anna Malarska, and Marie-Genevieve Akeli.

MEETING REPORT

3246 **Third Annual Pezcoller Symposium: Tumor Suppressor Genes.** David Livingston and Enrico Mihich.

3250 **Announcements**
Eighty-Fourth Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Future Annual Meetings of the AACR
Recent Death
Calendar of Events

3253 **Author Index**

June 15, Number 12

3255 **Selective *in Vivo* Localization of Daunorubicin Small Unilamellar Vesicles in Solid Tumors.** Eric A. Forssen, Dean M. Coulter, and Richard T. Proffitt.

3262 **An Unmodified Anticarcinoma Antibody, BR96, Localizes to and Inhibits the Outgrowth of Human Tumors in Nude Mice.** George J. Schreiber, Karl Erik Hellström, and Ingegerd Hellström.

3267 **Effect of Thrombin Treatment of Tumor Cells on Adhesion of Tumor Cells to Platelets *in Vitro* and Tumor Metastasis *in Vivo*.** Mary Lynn R. Nierodzik, Francis Kajumo, and Simon Karpatkin.

3273 **Placental Transfer of 4-(Methylnitrosamino)-1-(3-pyridyl)-1-butanone Instilled Intratracheally in Syrian Golden Hamsters.** Rossana Jorquera, Andre Castonguay, and Hildegard M. Schuller.

3281 **Expression of Gluathione Transferase π as a Predictor for Treatment Results at Different Stages of Acute Nonlymphoblastic Leukemia.** Ulf Tidefelt, Annika Elmhorn-Rosenborg, Christer Paul, Xiao-Yong Hao, Bengt Mannervik, and Lennart C. Eriksson.

3286 **Metabolism and Nucleic Acid Binding of *N*-Hydroxy-4-acetylaminobiphenyl and *N*-Acetoxy-4-acetylaminobiphenyl by Cultured Human Uroepithelial Cells.** Santhanam Swaminathan and Catherine A. Reznikoff.

3295 **Overexpression of Cholecystokinin Receptors in Azaserine-induced Neoplasms of the Rat Pancreas.** Richard H. Bell, Jr., Elna T. Kuhlmann, Robert T. Jensen, and Daniel S. Longnecker.

3300 **Activation of a β-Hydroxyalkylnitrosamine to Alkylating Agents: Evidence for the Involvement of a Sulfotransferase.** Marilyn B. Kroeger-Koepke, Steven R. Koepke, Lidia Hernandez, and Christopher J. Michejda.

3306 **Flavone Acetic Acid Increases the Antitumor Effect of Hyperthermia in Mice.** Yoshihisa Sakaguchi, Yoshihiko Maehara, Hideo Baba, Tetsuya Kusumoto, Keizo Sugimachi, and Robert A. Newman.

3310 **Generation of a Small Cell Lung Cancer Variant Resistant to Lymphokine-activated Killer (LAK) Cells: Association with Resistance to a LAK Cell-derived, Cytostatic Factor.** Isao Tachibana, Masatoshi Watanabe, Yoshiro Tanio, Seiji Hayashi, Shigeto Hosoe, Shin'ichi Saito, Machiko Matsunashi, Tadashi Osaki, Yoshihisa Shigedo, Tomiya Masuno, and Ichiro Kawase.

3317 **Serum Level of Interleukin 6 as a Prognosis Factor in Metastatic Renal Cell Carcinoma.** Jean-Yves Blay, Sylvie Negrier, Valerie Combaret, Stephane Attali, Evelyne Goillot, Yacine Merrouche, Alain Mercatello, Alain Ravault, Jean-Marc Tourani, Jean-Francois Moskovtchenko, Thierry Philip, and Marie Favrot.

3323 **Estimation of Prostatic Growth Using Serial Prostate-specific Antigen Measurements in Men with and without Prostate Disease.** H. Ballentine Carter, Christopher H. Morrell, Jay D. Pearson, Larry J. Brant, Constantine C. Plato, E. Jeffrey Metter, Daniel W. Chan, James L. Fozard, and Patrick C. Walsh.

3329 **Induction of Retinoic Acid-binding Protein in Normal and Malignant Human Myeloid Cells by Retinoic Acid in Acute Promyelocytic Leukemia Patients.** Monique Cornic, Laurent Delva, Fabien Guidez, Nicole Balitrand, Laurent Degos, and Christine Chomienne.

3335 **Growth Regulation of Human Renal Carcinoma Cells: Role of Transforming Growth Factor α.** Ian Atlas, John Mendelsohn, Jose Baselga, William R. Fair, Hideo Masui, and Rakesh Kumar.

3340 **Growth Inhibition by Cholera Toxin of Human Lung Carcinoma Cell Lines: Correlation with G_{M1} Ganglioside Expression.** Gurmeet Kaur, Jean Viallet, Jorge Laborda, Owen Blair, Adi F. Gazdar, John D. Minna, and Edward A. Sausville.

3347 **Activation of the Ha-, Ki-, and N-*ras* Genes in Chemically Induced Liver Tumors from CD-1 Mice.** Sujata Manam, Richard D. Storer, Srinivasa Prahalada, Karen R. Leander, Andrew R. Kraynak, Brian J. Ledwith, Matthew J. van Zwieten, Matthews O. Bradley, and Warren W. Nichols.

3353 **Expression of Cytokine Genes, Cytokine Receptor Genes, and Transcription Factors in Cultured Hodgkin and Reed-Sternberg Cells.** Hans-Jürgen Gruss, Marion A. Brach, Hans-Gunter Drexler, Renate Bonifer, Roland H. Mertelsmann, and Friedhelm Herrmann.

3361 **Induction of Interleukin 2 Production but not Methionine Adenosyltransferase Activity or *S*-Adenosylmethionine Turnover in Jurkat T-Cells.** James De La Rosa, Arthur M. Geller, H. Leighton LeGros, Jr., and Malak Kotb.

3367 **K-*sam*-related Gene, N-*sam*, Encodes Fibroblast Growth Factor Receptor and Is Expressed in T-Lymphocytic Tumors.** Yutaka Hattori, Hiroki Odagiri, Osamu Katoh, Hiromi Sakamoto, Toshirou Morita, Kunitada Shimotohno, Kensei Tobinai, Takashi Sugimura, and Masaaki Terada.

3372 **Genes Preferentially Expressed in Embryo Stomach Are Predominantly Expressed in Gastric Cancer.** Masamitsu Tanaka, Hiroki Sasaki, Isamu Kino, Takashi Sugimura, and Masaaki Terada.

3378 **Transcriptional Regulation of the Human Placental-like Alkaline Phosphatase Gene and Mechanisms Involved in Its Induction by Sodium Butyrate.** Guoren Deng, Guohui Liu, Lisheng Hu, James R. Gum, Jr., and Young S. Kim.

3384 **Teniposide Induces Nuclear but not Mitochondrial DNA Degradation.** Clifford G. Tepper and George P. Studzinski.

3391 **Evidence for a 17p Tumor Related Locus Distinct from p53 in Pediatric Primitive Neuroectodermal Tumors.** Jaclyn A. Biegel, Carol D. Burk, Frederic G. Barr, and Beverly S. Emanuel.

3396 **Distribution of the Folate Receptor GP38 in Normal and Malignant Cell Lines and Tissues.** Steven D. Weitman, Richard H. Lark, Leslie R. Coney, Daniel W. Fort, Verna Frasca, Vincent R. Zurawski, Jr., and Barton A. Kamen.

3402 **Rapid Tumor Penetration of a Single Chain Fv and Comparison with Other Immunoglobulin Forms.** Takashi Yokota, Diane E. Milenic, Marc Whitlow, and Jeffrey Schlom.

3409 **Resistance to *N*-Benzyladriamycin-14-valerate in Mouse J774.2 Cells: P-Glycoprotein Expression without Reduced *N*-Benzyladriamycin-14-valerate Accumulation.** Leonard Lothstein, Trevor W. Sweatman, Michael E. Dockter, and Mervyn Israel.

3418 **Programmed Cell Death in an Estrogen-independent Human Breast Cancer Cell Line, MDA-MB-468.** Deborah K. Armstrong, John T. Isaacs, Yvonne L. Ottaviano, and Nancy E. Davidson.

3425 **Interleukin 2 Acutely Induces Platelet and Neutrophil-Endothelial Adherence and Macromolecular Leakage.** Michael J. Edwards, Frederick N. Miller, David E. Sims, Deanna L. Abney, Dale A. Schuschke, and Tracey S. Corey.

3432 **Dissociation of Sensitivities to Tumor Promotion and Progression in Outbred and Inbred SENCAR Mice.** I. B. Gimenez-Conti, A. B. Bianchi, S. M. Fischer, J. J. Reiners, Jr., C. J. Conti, and T. J. Slaga.

3436 **Dose-Response Relationships for Chronic Exposure to 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin in a Rat Tumor Promotion Model: Quantification and Immunolocalization of CYP1A1 and CYP1A2 in the Liver.** Angelika M. Tritscher, Joyce A. Goldstein, Christopher J. Portier, Zadock McCoy, George C. Clark, and George W. Lucier.

3443 **Photofrin and Light Induces Microtubule Depolymerization in Cultured Human Endothelial Cells.** Lee Ann Sporn and Thomas H. Foster.

3449 **Loss of Colonic HLA Antigens in Familial Adenomatous Polyposis.** George Tsioulias, Thomas A. Godwin, Marjorie F. Goldstein, Carl J. McDougall, Ngoi Sing-Shang, Jerome J. DeCosse, and Basil Rigas.

3453 **Expression of c-*sis*/Platelet-derived Growth Factor B, Insulin-like Growth Factor I, and Transforming Growth Factor α Messenger RNAs and Their Respective Receptor Messenger RNAs in Primary Human Gastric Carcinomas: *In Vitro* Studies with *in Situ* Hybridization and Immunocytochemistry.** Cha K. Chung and Harry N. Antoniades.

3460 **Expression of Class II Major Histocompatibility Complex Molecules Correlates with Human Colon Tumor Vaccine Efficacy.** Janet H. Ransom, Barbara Pelle, and Michael G. Hanna, Jr.

3467 **Differential Immunohistochemical Detection of Amphiregulin and Cripto in Human Normal Colon and Colorectal Tumors.** Toshiaki Saeki, Kurt Stromberg, Chen-Feng Qi, William J. Gullick, Eiichi Tahara, Nicola Normanno, Fortunato Ciardiello, Nicholas Kenney, Gibbes R. Johnson, and David S. Salomon.

ADVANCES IN BRIEF

3474 **Deletion of Chromosome 17p Loci in Breast Cancer Cells Detected by Fluorescence *in Situ* Hybridization.** K. Matsumura, A. Kallioniemi, O. Kallioniemi, L. Chen, H. S. Smith, D. Pinkel, J. Gray, and F. M. Waldman.

3478 **Neoplastic Transformation of Immortalized Human Keratinocytes by 2,3,7,8-Tetrachlorodibenzo-*p*-dioxin.** Jae-Ho Yang, Peter Thraves, Anatoly Dritschilo, and Johng S. Rhim.

3483 **c-Ha-*ras* Containing 8-Hydroxyguanine at Codon 12 Induces Point Mutations at the Modified and Adjacent Positions.** Hiroyuki Kamiya, Kazunobu Miura, Hiroyuki Ishikawa, Hideo Inoue, Susumu Nishimura, and Eiko Ohtsuka.

CONTENTS OF VOLUME 52

3486 Localization of Metastasis Suppressor Gene(s) for Prostatic Cancer to the Short Arm of Human Chromosome 11. Tomohiko Ichikawa, Yayoi Ichikawa, Jintang Dong, Anita L. Hawkins, Constance A. Griffin, William B. Isaacs, Mitsuo Oshimura, J. Carl Barrett, and John T. Isaacs.

3491 Cell Cycle-related Expression of p120 Nucleolar Antigen in Normal Human Lymphocytes and in Cells of HL-60 and MOLT-4 Leukemic Lines: Effects of Methotrexate, Camptothecin, and Teniposide. Wojciech Gorczyca, Silvia Bruno, Myron R. Melamed, and Zbigniew Darzynkiewicz.

3495 Taxol Sensitizes Human Astrocytoma Cells to Radiation. Roy B. Tishler, Charles R. Geard, Eric J. Hall, and Peter B. Schiff.

3498 Recombinant Human Stem Cell Factor Stimulates Growth of a Human Glioblastoma Cell Line Expressing *c-kit* Protooncogene. Wolfgang E. Berdel, Sven de Vos, Juergen Maurer, Dorothea Oberberg, Zofia von Marschall, Jan K. Schroeder, Jian Li, Wolf-Dieter Ludwig, Ernst D. Kreuser, Eckhard Thiel, and Friedhelm Herrmann.

3503 Modulation of the Cytotoxic Effect of Cyclopentenylcytosine by Its Primary Metabolite, Cyclopentenyluridine. Susan M. Blaney, Frank M. Balis, Jean Grem, Diane E. Cole, Peter C. Adamson, and David G. Poplack.

3506 Molecular Analysis of the Protein Tyrosine Phosphatase γ Gene in Human Lung Cancer Cell Lines. Tetsuya Tsukamoto, Takashi Takahashi, Ryuzo Ueda, Kenji Hibi, Haruo Saito, and Toshitada Takahashi.

3510 Announcements
Eighty-Fourth Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Future Annual Meetings of the AACR
Calendar of Events

3512 Errata
T. G. Cotter *et al.*, *52*: 997–1005, 1992.
G. Y. Kwei *et al.*, *52*: 1639–1642, 1992.
B. Fisher, *52*: 2371–2383, 1992.

3513 Author Index

July 1, Number 13

3515 Modulation of the Cell Cycle-dependent Cytotoxicity of Adriamycin and 4-Hydroperoxycyclophosphamide by Novobiocin, an Inhibitor of Mammalian Topoisomerase II. Francis Y. F. Lee, Deborah J. Flannery, and Dietmar W. Siemann.

3521 Inhibition of Dihydroorotate Dehydrogenase Activity by Brequinar Sodium. Shih-Fong Chen, Frank W. Perrella, Davette L. Behrens, and Lisa M. Papp.

3528 Inhibition of Murine Tumor Growth by an Interferon-inducing Imidazoquinolinamine. Younan A. Sidky, Ernest C. Borden, Charles E. Weeks, Michael J. Reiter, James F. Hatcher, and George T. Bryan.

3534 Antitumor Activity of Magainin Analogues against Human Lung Cancer Cell Lines. Yoshinobu Ohsaki, Adi F. Gazdar, Hao-Chia Chen, and Bruce E. Johnson.

3539 Uptake of the Noncytotoxic Transport Probe Procainamide in the Chinese Hamster Ovary Model of Multidrug Resistance. K. V. Speeg, Jr., Catherine deLeon, and William L. McGuire.

3547 Metabolism of *N*-Nitrosomethyl-α-amylamine by Microsomes from Human and Rat Esophagus. Qin Huang, Gary Stoner, James Resau, Jeanetta Nickols, and Sidney S. Mirvish.

3552 Changes in Rectal Epithelial Cell Proliferation and Intestinal Bile Acids after Subtotal Colectomy in Familial Adenomatous Polyposis. Annemieke Cats, Jan H. Kleibeuker, Folkert Kuipers, Machiel J. Hardonk, René C. J. Verschueren, Wytske Boersma, Roel J. Vonk, Wim J. Sluiter, Nanno H. Mulder, Bert G. Wolthers, and Elisabeth G. E. de Vries.

3558 Multiple Biological Markers in Germ Cell Tumor Patients Treated with Platinum-based Chemotherapy. Frederica P. Perera, Robert J. Motzer, Deliang Tang, Eddie Reed, Riccardo Parker, Dorothy Warburton, Patrick O'Neill, Richard Albertini, William L. Bigbee, Ronald H. Jensen, Regina Santella, Wei-Yann Tsai, Gabriella Simon-Cereijido, Colleen Randall, and George Bosl.

3566 Synergism between Dipyridamole and Cisplatin in Human Ovarian Carcinoma Cells *in Vitro*. Antti Jekunen, Jeffery Vick, Raghuram Sanga, Thomas C. K. Chan, and Stephen B. Howell.

3572 Adriamycin-induced Modulation of Host Defenses in Tumor-bearing Mice. Darbie L. Maccubbin, Kathleen R. Wing, Kenneth F. Mace, Richard L. X. Ho, M. Jane Ehrke, and Enrico Mihich.

3577 Acrolein Initiates Rat Urinary Bladder Carcinogenesis. Samuel M. Cohen, Emily M. Garland, Margaret St. John, Takehiko Okamura, and Raymond A. Smith.

3582 Inhibition of Skin Tumor Promoter-caused Induction of Epidermal Ornithine Decarboxylase in SENCAR Mice by Polyphenolic Fraction Isolated from Green Tea and Its Individual Epicatechin Derivatives. Rajesh Agarwal, Santosh K. Katiyar, Syed I. A. Zaidi, and Hasan Mukhtar.

3589 Meal Frequency and Risk of Colorectal Cancer. Silvia Franceschi, Carlo La Vecchia, Ettore Bidoli, Eva Negri, and Renato Talamini.

3593 Interaction of Antileukemia Agents Adriamycin and Dsunomycin with Sphinganine on the Differentiation of Human Leukemia Cell Line HL-60. Benjamin Y-M. Yung, K. J. Luo, and Eric K-W. Hui.

3598 Inhibition of Hepatocyte DNA Synthesis by Transforming Growth Factor β_1 and Cyclic AMP: Effect Immediately before the G_1/S Border. G. Hege Thoresen, Magne Refsnes, and Thoralf Christoffersen.

3604 L-Histidinol: Preclinical Therapeutic Studies in Combination with Antitumor Agents and Pharmacokinetic Studies in Mice. Daniel Zaharko, Jacqueline Plowman, William Waud, Donald Dykes, and Louis Malspeis.

3610 Inhibition of *in Vitro* Ovarian Cancer Cell Invasion by Modulation of Urokinase-type Plasminogen Activator and Cathepsin B. Hiroshi Kobayashi, Hidekazu Ohi, Motoi Sugimura, Hiromitsu Shinohara, Toshiro Fujii, and Toshihiko Terao.

3615 2-Amino-3,4-dimethylimidazo[4,5-*f*]quinoline Induces and Inhibits Cytochrome P450 from the IA Subfamily in Chick and Rat Hepatocytes. Jacqueline F. Sinclair, Barbara K. Schaeffer, Sheryl G. Wood, Linda K. Lambrecht, Nadia Gorman, W. Jay Bement, E. Lucile Smith, Peter R. Sinclair, and Charles A. Waldren.

3622 Characterization and Purification of a Guanidinobenzoatase: A Possible Marker of Human Renal Carcinoma. Claudine Poustis-Delpont, Roland Descomps, Patrick Auberger, Pascale Delque-Bayer, Pierre Sudaka, and Bernard Rossi.

3629 Low-Density Lipoprotein for Delivery of an Acrylophenone Antineoplastic Molecule into Malignant Cells. Sophie Lestavel-Delattre, Francoise Martin-Nizard, Véronique Clavey, Pierre Testard, Gilles Favre, Goulven Doualin, Hayat Sqalli Houssaini, Jean-Marie Bard, Patrick Duriez, Christiane Delbart, Georges Soula, Daniel Lesieur, Isabelle Lesieur, Jean-Claude Cazin, Micheline Cazin, and Jean-Charles Fruchart.

3636 Inhibition of Breast Cancer Cell Growth *in Vitro* by a Tyrosine Kinase Inhibitor. Kaladhar B. Reddy, Gina L. Mangold, Atul K. Tandon, Toshiyuki Yoneda, Gregory R. Mundy, Asher Zilberstein, and C. Kent Osborne.

3642 New Approach for Detection of Amplification in Cancer DNA Using Restriction Landmark Genomic Scanning. Shinji Hirotsune, Izuho Hatada, Hideyuki Komatsubara, Hisaki Nagai, Kanji Kuma, Kiyoshi Kobayakawa, Tsutomu Kawara, Akira Nakagawara, Kiyotaka Fujii, Tsunehiro Mukai, and Yoshihide Hayashizaki.

3648 Response of Human Breast Cancer Cells to Heat Shock and Chemotherapeutic Drugs. Daniel R. Ciocca, Suzanne A. W. Fuqua, Sarah Lock-Lim, David O. Toft, William J. Welch, and William L. McGuire.

3655 Effect of a Dihydropyridine Analogue, 2-[Benzyl(phenyl)amino]ethyl 1,4-Dihydro-2,6-dimethyl-5-(5,5-dimethyl-2-oxo-1,3,2-dioxaphosphorinan-2-yl-1-(2-morpholinoethyl)-4-(3-nitrophenyl)-3-pyridinecarboxylate, on Reversing *in Vivo* Resistance of Tumor Cells to Adriamycin. Kiyoshi Niwa, Kazutaka Yamada, Tatsuhiko Furukawa, Norimasa Shudo, Kiyotomo Seto, Tamotsu Matsumoto, Sonshin Takao, Shin-ichi Akiyama, and Hisaaki Shimazu.

3661 Macrophage Colony-stimulating Factor (CSF-1) Enhances Invasiveness in CSF-1 Receptor-positive Carcinoma Cell Lines. Andrew E. Filderman, Andrew Bruckner, Barry M. Kacinski, Nanhua Deng, and Heinz G. Remold.

3667 Expression of Human hsp70 in Rat Fibroblasts Enhances Cell Survival and Facilitates Recovery from Translational and Transcriptional Inhibition following Heat Shock. Richard Y. Liu, Xiaochuan Li, Ligeng Li, and Gloria C. Li.

3674 Mutation Pattern of the *p53* Gene as a Diagnostic Marker for Multiple Hepatocellular Carcinoma. Tatsuya Oda, Hitoshi Tsuda, Aldo Scarpa, Michiie Sakamoto, and Setsuo Hirohashi.

3679 Interleukin 6 Gene Transfection into Lewis Lung Carcinoma Tumor Cells Suppresses the Malignant Phenotype and Confers Immunotherapeutic Competence against Parental Metastatic Cells. Angel Porgador, Esther Tzehoval, Anne Katz, Ezra Vadai, Michel Revel, Michael Feldman, and Lea Eisenbach.

3687 Characterization of the PML-RARα Chimeric Product of the Acute Promyelocytic Leukemia-specific t(15;17) Translocation. Clara Nervi, E. Christine Poindexter, Francesco Grignani, Pier Paolo Pandolfi, Francesco Lo Coco, Giuseppe Avvisati, Pier Giuseppe Pelicci, and Anton M. Jetten.

3693 Oxidation of Methylhydrazines to Mutagenic Methylating Derivatives and Inducers of the Adaptive Response of *Escherichia coli* to Alkylation Damage. Barbara Sedgwick.

3698 The Potential Superiority of Bromodeoxyuridine to Iododeoxyuridine as a Radiation Sensitizer in the Treatment of Colorectal Cancer. Theodore S. Lawrence, Mary A. Davis, Jonathan Maybaum, Sunil K. Mukhopadhyay, Philip L. Stetson, Daniel P. Normolle, Paul E. McKeever, and William D. Ensminger.

3705 Responsiveness of Three Newly Established Human Colorectal Cancer Cell Lines to Transforming Growth Factors β_1 and β_2. L. Suardet, A-C. Gaide, J-M. Calmès, B. Sordat, J-C. Givel, J. F. Eliason, and N. Odartchenko.

3713 Differentiation of Choriocarcinoma Cell Line (JAr). Abraham Hochberg, Jacob Rachmilewitz, Talia Eldar-Geva, Tamar Salant, Tamar Schneider, and Nathan de Groot.

3718 Differentiation of HT-29 Human Colonic Adenocarcinoma Cells Correlates with Increased Expression of Mitochondrial RNA: Effects of Trehalose on Cell Growth and Maturation. Xiang Lu, Teena Walker, John P. MacManus, and Verner L. Seligy.

3726 Gastrin-releasing Peptide: *In Vivo* and *in Vitro* Growth Effects on an Acinar Pancreatic Carcinoma. Amor Hajri, Ginette Balboni, Michèle Koenig, Jean-Claude Garaud, and Christiane Damgé.

3733 Evaluation of the *wap-ras* Transgenic Mouse as a Model System for Testing Anticancer Drugs. Loretta L. Nielsen, Maya Gurnani, and Ronald D. Tyler.

3739 Specificity and Immunobiological Properties of Monoclonal Antibody IMH2, Established after Immunization with Le^d/Le^a Glycosphingolipid, a Novel Extended Type 1 Chain Antigen. Hisashi Ito, Kazuhiro Tashiro, Mark R. Stroud, Torben F. Ørntoft, Peter Meldgaard, Anil K. Singhal, and Sen-itiroh Hakomori.

3746 *SAS* Amplification in Soft Tissue Sarcomas. Sharon H. Smith, Sharon W. Weiss, Sheryl A. Jankowski, Marco A. Coccia, and Paul S. Meltzer.

3750 Elevated Level of Nuclear Protein Kinase C in Multidrug-resistant MCF-7 Human Breast Carcinoma Cells. Sung Ae Lee, James W. Karaszkiewicz, and Wayne B. Anderson.

3760 Oncogene Complementation in Fetal Brain Transplants. Otmar D. Wiestler, Adriano Aguzzi, Markus Schneemann, Robert Eibl, Andreas von Deimling, and Paul Kleihues.

3768 Immunohistochemical Identification of P-Glycoprotein in Previously Untreated, Diffuse Large Cell and Immunoblastic Lymphomas. Gloria A. Niehans, Waclaw Jaszcz, Virginia Brunetto, Robert T. Perri, Kazimiera Gajl-Peczalska, Mark R. Wick, Takashi Tsuruo, and Clara D. Bloomfield.

ADVANCES IN BRIEF

3776 Taxol Blocks Processes Essential for Prostate Tumor Cell (PC-3 ML) Invasion and Metastases. Mark E. Stearns and Min Wang.

3782 UDP-*N*-Acetylhexosamine Modulation by Glucosamine and Uridine in NCI N-417 Variant Small Cell Lung Cancer Cells: ^{31}P Nuclear Magnetic Resonance Results. Nathanael V. Pederson, Richard H. Knop, and William M. Miller.

3787 Human Immunodeficiency Virus Type 1 *tat* Gene Up-regulates Interleukin 4 Receptors on a Human B-Lymphoblastoid Cell Line. Raj K. Puri and Bharat B. Aggarwal.

3791 *p53* Mutations in C57BL/6J Murine Thymic Lymphomas Induced by γ-Irradiation and *N*-Methylnitrosourea. Ormond Brathwaite, William Bayona, and Elizabeth W. Newcomb.

3796 Stimulation of Malignant Growth in Rodents by Antidepressant Drugs at Clinically Relevant Doses. Lorne J. Brandes, Randi J. Arron, R. Patricia Bogdanovic, Jiangang Tong, Cheryl L. F. Zaborniak, Georgina R. Hogg, Robert C. Warrington, Wei Fang, and Frank S. LaBella.

3801 Loss of Expression of the *DCC* Gene during Progression of Colorectal Carcinomas in Familial Adenomatous Polyposis and Non-Familial Adenomatous Polyposis Patients. Rei Kikuchi-Yanoshita, Motoko Konishi, Hiroyuki Fukunari, Kiyoko Tanaka, and Michiko Miyaki.

3804 *p53* Mutations in Basal Cell Carcinomas. Peter Rady, Franco Scinicariello, Richard F. Wagner, Jr., and Stephen K. Tyring.

3807 Partial Characterization of Nuclear Matrix Attachment Regions from Human Fibroblast DNA Using Alu-Polymerase Chain Reaction. Gregory J. Tsongalis, William B. Coleman, Gary J. Smith, and David G. Kaufman.

3811 An Altered 11-Kilobase Transcript in Leukemic Cell Lines with the t(4;11)(q21;q23) Chromosome Translocation. G. Cimino, T. Nakamura, Y. Gu, O. Canaani, R. Prasad, W. M. Crist, A. J. Carroll, M. Baer, C. D. Bloomfield, P. C. Nowell, C. M. Croce, and E. Canaani.

3814 Gadd 45 and Gadd 153 Messenger RNA Levels Are Increased during Hypoxia and after Exposure of Cells to Agents Which Elevate the Levels of the Glucose-regulated Proteins. Brendan D. Price and Stuart K. Calderwood.

LETTER TO THE EDITOR

3818 Correspondence re: L. E. Damon *et al.*, Plasma and Cerebrospinal Fluid Pharmacokinetics of 1-β-D-Arabinofuranosylcytosine and 1-β-D-Arabinofuranosyluracil following the Repeated Intravenous Administration of High- and Intermediate-Dose 1-β-D-Arabinofuranosylcytosine. Cancer Res., *51*: 4141–4145, 1991. Willi Kreis and Daniel R. Budman. Reply by Lloyd E. Damon, William Plunkett, and Charles A. Linker.

MEETING REPORT

3821 Fourth Charles Heidelberger Conference on Transformation and Chemotherapy. Peter A. Jones.

3826 Announcements
Eighty-Fourth Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Recent Death
Calendar of Events

3828 Erratum
D. K. Manchester *et al.*, *52*: 1499–1503, 1992.

3828 Retraction
T. Nitta *et al.*, *51*: 5565–5569, 1991.

3829 Author Index

CONTENTS OF VOLUME 52

July 15, Number 14

3831 **Distribution of Misonidazole Adducts in 9L Gliosarcoma Tumors and Spheroids: Implications for Oxygen Distribution.** Allan J. Franko, Cameron J. Koch, and Don P. J. Boisvert.

3838 **Long-Term Growth Suppression of Human Glioma Xenografts by Chemoimmunoconjugates of 4-Desacetylvinblastine-3-carboxyhydrazide and Monoclonal Antibody 9.2.27.** Martin Schrappe, Thomas F. Bumol, Lynn D. Apelgren, Stephen L. Briggs, Gary A. Koppel, Dorothy D. Markowitz, Barbara M. Mueller, and Ralph A. Reisfeld.

3845 **Effect of Systemic Hyperinsulinemia in Cancer Patients.** Martin J. Heslin, Elliot Newman, Ronald F. Wolf, Peter W. T. Pisters, and Murray F. Brennan.

3851 **Modulation of Ethylnitrosourea-induced Toxicity and Mutagenicity in Human Cells by O^6-Benzylguanine.** S. Maynard Bronstein, Michelle J. Hooth, James A. Swenberg, and Thomas R. Skopek.

3857 **Mechanism-related Circumvention of Acquired *cis*-Diamminedichloro Resistance Using Two Pairs of Human Ovarian Carcinoma Cell Lines by Ammine/Amine Platinum(IV) Dicarboxylates.** Lloyd R. Kelland, Prakash Mistry, George Abel, Swee Y. Loh, Ciaran F. O'Neill, Barry A. Murrer, and Kenneth R. Harrap.

3865 **Relation of Obesity and Body Fat Distribution to Endometrial Cancer in Shanghai, China.** Xiao Ou Shu, Louise A. Brinton, Wei Zheng, Christine A. Swanson, Maureen C. Hatch, Yu-Tang Gao, and Joseph F. Fraumeni, Jr.

3871 **Phase II Study of Intravenous Idarubicin in Unfavorable Non-Hodgkin's Lymphoma.** Delvyn C. Case, Jr., Mirjam C. Gerber, Richard A. Gams, Jeffrey Crawford, May L. Votaw, Celestia S. Higano, Brian T. Pruitt, and James Gould.

3875 **Inhibition of Tobacco-specific Nitrosamine-induced Lung Tumorigenesis in A/J Mice by Green Tea and Its Major Polyphenol as Antioxidants.** Yong Xu, Chi-Tang Ho, Shantu G. Amin, Chi Han, and Fung-Lung Chung.

3880 **Tumoricidal Activation of Murine Resident Peritoneal Macrophages by Interleukin 2 and Tumor Necrosis Factor α.** Srdan Verstovsek, Darbie Maccubbin, M. Jane Ehrke, and Enrico Mihich.

3886 **1-β-D-Arabinofuranosylcytosine-diphosphate-choline Is Formed by the Reversal of Cholinephosphotransferase and not via Cytidylyltransferase.** Gregory L. Kucera and Robert L. Capizzi.

3892 **Identification of Novel Antimitotic Agents Acting at the Tubulin Level by Computer-assisted Evaluation of Differential Cytotoxicity Data.** Kenneth D. Paull, Chii M. Lin, Louis Malspeis, and Ernest Hamel.

3901 **Free Human Chorionic Gonadotropin β Subunit in Gonadal and Nongonadal Neoplasms.** Isabelle Marcillac, Frédéric Troalen, Jean-Michel Bidart, Pascale Ghillani, Vincent Ribrag, Bernard Escudier, Benoit Malassagne, Jean-Pierre Droz, Catherine Lhommé, Philippe Rougier, Pierre Duvillard, Michel Prade, Pierre-Marie Lugagne, François Richard, Thierry Poynard, Claude Bohuon, Jack Wands, and Dominique Bellet.

3908 **Intrinsic Resistance to Methotrexate in Human Soft Tissue Sarcoma Cell Lines.** Wei-Wei Li, James T. Lin, Barry I. Schweitzer, William P. Tong, Donna Niedzwiecki, and Joseph R. Bertino.

3914 **Correlation of Loss of Alleles on the Short Arms of Chromosomes 11 and 17 with Metastasis of Primary Breast Cancer to Lymph Nodes.** Ken-ichi Takita, Takaaki Sato, Mutsuko Miyagi, Masahiro Watatani, Futoshi Akiyama, Goi Sakamoto, Fujio Kasumi, Rikiya Abe, and Yusuke Nakamura.

3918 ***p53* Mutations Occur in Aggressive Breast Cancer.** Raoul Mazars, Laura Spinardi, Meryem BenCheikh, Joelle Simony-Lafontaine, Philippe Jeanteur, and Charles Theillet.

3924 **Insulin Receptor Expression and Function in Human Breast Cancer Cell Lines.** Giovanni Milazzo, Francesco Giorgino, Giuseppe Damante, Chin Sung, Martha R. Stampfer, Riccardo Vigneri, Ira D. Goldfine, and Antonino Belfiore.

3931 **Genetic Modification of a Murine Fibrosarcoma to Produce Interleukin 7 Stimulates Host Cell Infiltration and Tumor Immunity.** William H. McBride, J. Dean Thacker, Sian Comora, James S. Economou, David Kelley, Donna Hogge, Steven M. Dubinett, and Graeme J. Dougherty.

3938 **Retinoid Antagonism of Estrogen-responsive Transforming Growth Factor α and pS2 Gene Expression in Breast Carcinoma Cells.** Joseph A. Fontana, Clara Nervi, Zhi-Ming Shao, and Anton M. Jetten.

3946 **N-*ras* Mutation in Ultraviolet Radiation-induced Murine Skin Cancers.** William E. Pierceall, Margaret L. Kripke, and Honnavara N. Ananthaswamy.

3952 **Mechanism of *c-fos* Induction by Active Oxygen.** Paul A. Amstad, Georg Krupitza, and Peter A. Cerutti.

3961 ***Salmonella typhimurium* Strains Expressing Human Arylamine *N*-Acetyltransferases: Metabolism and Mutagenic Activation of Aromatic Amines.** Denis M. Grant, P. David Josephy, Heather L. Lord, and Lesley D. Morrison.

3965 **Genetic Changes of Both *p53* Alleles Associated with the Conversion from Colorectal Adenoma to Early Carcinoma in Familial Adenomatous Polyposis and Non-Familial Adenomatous Polyposis Patients.** Rei Kikuchi-Yanoshita, Motoko Konishi, Satomi Ito, Madoka Seki, Kiyoko Tanaka, Yoshiharu Maeda, Hiroshi Iino, Masashi Fukayama, Morio Koike, Takeo Mori, Hitoshi Sakuraba, Hiroyuki Fukunari, Takeo Iwama, and Michiko Miyaki.

3972 **Distribution of the Glucose Transporters in Human Brain Tumors.** Tatsuya Nishioka, Yoshifumi Oda, Yutaka Seino, Taizo Yamamoto, Nobuya Inagaki, Hideki Yano, Hiroo Imura, Ryuichi Shigemoto, and Haruhiko Kikuchi.

3980 **Complete Inhibition of Growth followed by Death of Human Malignant Melanoma Cells *in Vitro* and Regression of Human Melanoma Xenografts in Immunodeficient Mice by Camptothecins.** Panayotis Pantazis, Hellmuth R. Hinz, John T. Mendoza, A. J. Kozielski, Leo J. Williams, Jr., John S. Stehlin, Jr., and Beppino C. Giovanella.

3988 **Localization of Tumors and Evaluation of Their State of Oxygenation by Phosphorescence Imaging.** David F. Wilson and George J. Cerniglia.

3994 **Growth Inhibition of Human Glioma Cells Induced by 8-Chloroadenosine, an Active Metabolite of 8-Chloro Cyclic Adenosine 3′:5′-Monophosphate.** Cornelis H. Langeveld, Cornelis A. M. Jongenelen, Jan J. Heimans, and Johannes C. Stoof.

4000 **Subcellular Distribution of the Anticancer Drug Mitoxantrone in Human and Drug-resistant Murine Cells Analyzed by Flow Cytometry and Confocal Microscopy and Its Relationship to the Induction of DNA Damage.** Paul J. Smith, Hazel R. Sykes, Mary E. Fox, and Isla J. Furlong.

4009 **HLA Class II Antigen Expression in Human Papillomavirus-associated Cervical Cancer.** Susan S. Glew, Margaret Duggan-Keen, Teresa Cabrera, and Peter L. Stern.

4017 **Herbimycin A, an Inhibitor of Tyrosine Kinase, Prolongs Survival of Mice Inoculated with Myeloid Leukemia C1 Cells with High Expression of *v-abl* Tyrosine Kinase.** Yoshio Honma, Junko Okabe-Kado, Takashi Kasukabe, Motoo Hozumi, Hiroaki Kodama, Sachiko Kajigaya, Toshio Suda, and Yoshisada Miura.

4021 **Limonene-induced Regression of Mammary Carcinomas.** Jill D. Haag, Mary J. Lindstrom, and Michael N. Gould.

4027 **Differentiation-induced Changes in Protein-Tyrosine Phosphatase Activity and Commensurate Expression of CD45 in Human Leukemia Cell Lines.** Marina Buzzi, Li Lu, Anthony J. Lombardi, Jr., Marshall R. Posner, David L. Brautigan, Lauren D. Fast, and A. Raymond Frackelton, Jr.

4036 **Expression of a Transfected *H-2K*^{b} Gene in B16 Cells Correlates with Suppression of Liver Metastases in Triple Immunodeficient Mice.** Lido Calorini, Anna Marozzi, H. Randolph Byers, Gerald L. Waneck, Kenneth W. Lee, Kurt J. Isselbacher, and Sebastiano Gattoni-Celli.

ADVANCES IN BRIEF

4042 **Transforming Growth Factor β_1 Induces Apoptotic Cell Death in Cultured Human Gastric Carcinoma Cells.** Kazuyoshi Yanagihara and Masaru Tsumuraya.

4046 **Abundant Expression of Immunoreactive Endothelin 1 in Mammary Phyllodes Tumor: Possible Paracrine Role of Endothelin 1 in the Growth of Stromal Cells in Phyllodes Tumor.** Jun-ichi Yamashita, Michio Ogawa, Hiroshi Egami, Shuichi Matsuo, Hideo Kiyohara, Kazuo Inada, Shin-ichi Yamashita, and Syoji Fujita.

4050 **Enhancement of Antioxidant and Phase II Enzymes by Oral Feeding of Green Tea Polyphenols in Drinking Water to SKH-1 Hairless Mice: Possible Role in Cancer Chemoprevention.** Sikandar G. Khan, Santosh K. Katiyar, Rajesh Agarwal, and Hasan Mukhtar.

4053 **3-Aminobenzamide Can Act as a Cocarcinogen for Ultraviolet Light-induced Carcinogenesis in Mouse Skin.** John H. Epstein and James E. Cleaver.

4055 **Correlation between the Location of Germ-Line Mutations in the *APC* Gene and the Number of Colorectal Polyps in Familial Adenomatous Polyposis Patients.** Hiroki Nagase, Yasuo Miyoshi, Akira Horii, Takahisa Aoki, Michio Ogawa, Joji Utsunomiya, Shozo Baba, Takehiko Sasazuki, and Yusuke Nakamura.

MEETING REPORT

4058 **Workshop Report from the Division of Research Grants, National Institutes of Health: Metal Carcinogenesis—A Chemical Pathology Study Section Workshop.** Karen E. Wetterhahn, Bruce Demple, Molly Kulesz-Martin, and Edmund S. Copeland.

4064 **Announcements**
Eighty-Fourth Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Recent Death
Calendar of Events

4066 **Erratum**
C. R. Boland *et al.*, *51*: 657–665, 1991.

4067 **Author Index**

August 1, Number 15

4069 **Azidothymidine-induced Cytotoxicity and Incorporation into DNA in the Human Colon Tumor Cell Line HCT-8 Is Enhanced by Methotrexate *in Vitro* and *in Vivo*.** Patrizia Tosi, Paul Calabresi, Frederick A. Goulette, Cynthia A. Renaud, and James W. Darnowski.

4074 **Biochemical Modulation of Tumor Cell Energy: Regression of Advanced Spontaneous Murine Breast Tumors with a 5-Fluorouracil-containing Drug Combination.** Robert L. Stolfi, Joseph R. Colofiore, L. D. Nord, Jason A. Koutcher, and Daniel S. Martin.

4082 **Prevention of Acute Chemotherapy-induced Death in Mice by Recombinant Human Interleukin 1: Protection from Hematological and Nonhematological Toxicities.** Giovanna Damia, Kristin L. Komschlies, Hitoyasu Futami, Timothy Back, M. Eilene Gruys, Dan L. Longo, Jonathan R. Keller, Francis W. Ruscetti, and Robert H. Wiltrout.

4090 **Multiparameter Assessment of the Cell Cycle Effects of Bioactive and Cytotoxic Agents.** Harvey D. Preisler, Venu Gopal, Shripad D. Banavali, Daniel Finke, and Syed A. J. Bokari.

4096 **Increased Therapeutic Efficacy Induced by Tumor Necrosis Factor α Combined with Platinum Complexes and Whole-Body Hyperthermia in Rats.** Shinji Ohno, Zahid H. Siddik, Frederick R. Strebel, L. Clifton Stephens, Masato Makino, Jim Klostergaard, Stephen P. Tomasovic, Abdul R. Khokhar, and Joan M. C. Bull.

4102 **Difference in the Response of *neu* and *ras* Oncogene-induced Rat Mammary Carcinomas to Early and Late Ovariectomy.** Bingcheng Wang, Wendy S. Kennan, Jane Yasukawa-Barnes, Mary J. Lindstrom, and Michael N. Gould.

4106 **Resistance to Tamoxifen with Persisting Sensitivity to Estrogen: Possible Mediation by Excessive Antiestrogen Binding Site Activity.** Edward J. Pavlik, Katherine Nelson, Suseela Srinivasan, Deborah E. Powell, Daniel E. Kenady, Paul D. DePriest, Holly H. Gallion, and John R. van Nagell, Jr.

4113 **Interleukin 6 Reduces Lipoprotein Lipase Activity in Adipose Tissue of Mice *in Vivo* and in 3T3-L1 Adipocytes: A Possible Role for Interleukin 6 in Cancer Cachexia.** Andrew S. Greenberg, Richard P. Nordan, Joseph McIntosh, Juan Carlos Calvo, Robert O. Scow, and David Jablons.

4117 **Tumor Resistance Induced by Syngeneic Bone Marrow Transplantation and Enhanced by Interleukin 2: A Model for the Graft *versus* Leukemia Reaction.** Larry W. Kwak, Michael J. Campbell, and Ronald Levy.

4121 **Structure-Activity Study and Design of Multidrug-resistant Reversal Compounds by a Computer Automated Structure Evaluation Methodology.** Gilles Klopman, Sanjay Srivastava, Istvan Kolossvary, Raquel F. Epand, Nadeem Ahmed, and Richard M. Epand.

4130 **CI-973, a New Platinum Derivative with Potential Antileukemic Activity.** Susan O'Brien, Hagop Kantarjian, Emil Freireich, Dennis Johnston, Kim Nguyen, and Miloslav Beran.

4135 **Adriamycin: Protection from Cell Death by Removal of Extracellular Drug.** Paul Vichi and Thomas R. Tritton.

4139 **Nitrite and Nitrosamine Synthesis by Hepatocytes Isolated from Normal Woodchucks (*Marmota monax*) and Woodchucks Chronically Infected with Woodchuck Hepatitis Virus.** Rui Hai Liu, James R. Jacob, Bud C. Tennant, and Joseph H. Hotchkiss.

4144 **Inhibition of Hematopoietic Tumor Growth by Combined Treatment with Deferoxamine and an IgG Monoclonal Antibody against the Transferrin Receptor: Evidence for a Threshold Model of Iron Deprivation Toxicity.** John D. Kemp, John A. Thorson, Barbara C. Stewart, and Paul W. Naumann.

4149 **Development of a Murine Lymphoma Model System for the Characterization of Natural Killer:Tumor Cell Interactions.** Glennda Smithson, R. Michael Wolcott, and Robert Chervenak.

4157 **Effect of Bivalent Interaction upon Apparent Antibody Affinity: Experimental Confirmation of Theory Using Fluorescence Photobleaching and Implications for Antibody Binding Assays.** Eric Neil Kaufman and Rakesh K. Jain.

4168 **Development of Antibodies against p53 in Lung Cancer Patients Appears to Be Dependent on the Type of *p53* Mutation.** Stefan F. Winter, John D. Minna, Bruce E. Johnson, Takashi Takahashi, Adi F. Gazdar, and David P. Carbone.

4175 **Identification and Characterization of New Antigenic Fragments Related to Carcinoembryonic Antigen in Adult Feces.** Jerry G. Henslee, Edward J. Vachula, Raymond J. Paxton, Matthew S. Matias, John E. Shively, Harry G. Rittenhouse, and Joseph T. Tomita.

4183 **Gene- and Strand-specific Damage and Repair in Chinese Hamster Ovary Cells Treated with 4-Nitroquinoline 1-Oxide.** Elizabeth G. Snyderwine and Vilhelm A. Bohr.

4190 **Targeting of Tumor Cells and DNA by a Chlorambucil-Spermidine Conjugate.** Jane L. Holley, Andrew Mather, Richard T. Wheelhouse, Paul M. Cullis, John A. Hartley, John P. Bingham, and Gerald M. Cohen.

4196 **Abnormal Structure and Expression of the *p53* Gene in Human Ovarian Carcinoma Cell Lines.** Yuji Yaginuma and Heiner Westphal.

4200 **Correlation between *In Vivo* Toxicity and Preclinical *in Vitro* Parameters for the Immunotoxin Anti-B4-blocked Ricin.** Michael L. Grossbard, John M. Lambert, Victor S. Goldmacher, Walter A. Blättler, and Lee M. Nadler.

4208 ***In Vivo* Growth of C6 Glioma Cells Transfected with Connexin43 cDNA.** Christian C. G. Naus, Kost Elisevich, Daguang Zhu, Daniel J. Belliveau, and Rolando F. Del Maestro.

4214 **Chondrocytic Differentiation of Peripheral Neuroectodermal Tumor Cell Line in Nude Mouse Xenograft.** Junko Goji, Kimihiko Sano, Hajime Nakamura, and Hiroshi Ito.

4221 **Inhibition of Proliferation by c-*myb* Antisense RNA and Oligodeoxynucleotides in Transformed Neuroectodermal Cell Lines.** Giuseppe Raschellà, Anna Negroni, Tomasz Skorski, Sabina Pucci, Malgorzata Nieborowska-Skorska, Antonino Romeo, and Bruno Calabretta.

4227 **Pyrimidine Dimer Removal Enhanced by DNA Repair Liposomes Reduces the Incidence of UV Skin Cancer in Mice.** Daniel Yarosh, Lori Green Alas, Vivien Yee, Andrew Oberyszyn, Jeannie Tsimis Kibitel, David Mitchell, Rebecca Rosenstein, Alan Spinowitz, and Marc Citron.

CONTENTS OF VOLUME 52

4232 **Expression of Platelet-derived Growth Factor-independent Phenotypes in BALB/c 3T3 Cell Variant with High Susceptibility to Chemically or Physically Induced Neoplastic Cell Transformation: Dissociation from Activation of Protein Kinase C.** Masaaki Tatsuka, M. Koji Owada, and Hiromi Mitsui.

4242 **Effect of Testosterone on the Growth Properties and on Epidermal Growth Factor Receptor Expression in the Teratoma-derived Tumorigenic Cell Line 1246-3A.** Ginette Serrero, Nancy M. Lepak, Jun Hayashi, and Dominic P. Eisinger.

4248 **DNA Topoisomerase II Immunostaining in Human Leukemia and Rhabdomyosarcoma Cell Lines and Their Responses to Topoisomerase II Inhibitors.** Judith S. Wolverton, Mary K. Danks, Bernd Granzen, and William T. Beck.

4254 **Squamous Metaplasia of Normal and Carcinoma *in Situ* of HPV 16-Immortalized Human Endocervical Cells.** Qi Sun, Kouichiro Tsutsumi, M. Brian Kelleher, Alan Pater, and Mary M. Pater.

ADVANCES IN BRIEF

4261 **Induction of Transforming Growth Factor β_1 in Human Breast Cancer *in Vivo* following Tamoxifen Treatment.** Anju Butta, Kenneth MacLennan, Kathleen C. Flanders, Nigel P. M. Sacks, Ian Smith, Alan McKinna, Mitchell Dowsett, Lalage M. Wakefield, Michael B. Sporn, Michael Baum, and Anthony A. Colletta.

4265 **Diminished Leukocyte-Endothelium Interaction in Tumor Microvessels.** Ning Z. Wu, Bruce Klitzman, Richard Dodge, and Mark W. Dewhirst.

4269 **Reversal of Divergent Differentiation by *ras* Oncogene-mediated Transformation.** Jie Pan, Calvin D. Roskelley, Van Luu-The, Mumtaz Rojiani, and Nelly Auersperg.

4273 **The Pattern of *p53* Mutations in Burkitt's Lymphoma Differs from That of Solid Tumors.** Kishor G. Bhatia, Marina I. Gutiérrez, Konrad Huppi, David Siwarski, and Ian T. Magrath.

4277 **Evidence for a Tumor Suppressor Gene on Chromosome 19q Associated with Human Astrocytomas, Oligodendrogliomas, and Mixed Gliomas.** Andreas von Deimling, David N. Louis, Klaus von Ammon, Iver Petersen, Otmar D. Wiestler, and Bernd R. Seizinger.

4280 **Identification of Antisense RNA Transcripts from a Human DNA Topoisomerase I Pseudogene.** Bing-Sen Zhou, David R. Beidler, and Yung-Chi Cheng.

4286 **Murine Bladder Carcinoma Cells Present Antigen to BCG-specific CD4⁺ T-Cells.** Edmund C. Lattime, Leonard G. Gomella, and Peter A. McCue.

LETTER TO THE EDITOR

4291 **Correspondence re: G. Caderni *et al.*, Effect of Dietary Carbohydrates on the Growth of Dysplastic Crypt Foci in the Colon of Rats Treated with 1,2-Dimethylhydrazine. Cancer Res., *51*: 3721–3725, 1991.** Ranjana P. Bird and Theresa P. Pretlow. Reply by Piero Dolara and Giovanna Caderni.

4293 **Announcements**
Eighty-Fourth Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Calendar of Events

4296 **Author Index**

August 15, Number 16

4297 **Interleukin 8 Is Produced in Neoplastic and Infectious Diseases of the Human Central Nervous System.** Erwin Van Meir, Miroslav Ceska, Fritz Effenberger, Alfred Walz, Eric Grouzmann, Isabelle Desbaillets, Karl Frei, Adriano Fontana, and Nicolas de Tribolet.

4306 **Immunological Quantitation of Thymidylate Synthase Using the Monoclonal Antibody TS 106 in 5-Fluorouracil-sensitive and -resistant Human Cancer Cell Lines.** Patrick G. Johnston, James C. Drake, Jane Trepel, and Carmen J. Allegra.

4313 **Hormone-regulated Apoptosis Results from Reentry of Differentiated Prostate Cells onto a Defective Cell Cycle.** Marc Colombel, Carl A. Olsson, Po-Ying Ng, and Ralph Buttyan.

4320 **Molecular Dosimetry of Ethylene Oxide: Formation and Persistence of *N*-(2-Hydroxyethyl)valine in Hemoglobin following Repeated Exposures of Rats and Mice.** Vernon E. Walker, John P. MacNeela, James A. Swenberg, Max J. Turner, Jr., and Timothy R. Fennell.

4328 **Molecular Dosimetry of Ethylene Oxide: Formation and Persistence of 7-(2-Hydroxyethyl)guanine in DNA following Repeated Exposures of Rats and Mice.** Vernon E. Walker, Timothy R. Fennell, Patricia B. Upton, Thomas R. Skopek, Virginie Prevost, David E. G. Shuker, and James A. Swenberg.

4335 ***p53* Gene Mutations in Human Gastric Cancer: Wild-Type *p53* but not Mutant *p53* Suppresses Growth of Human Gastric Cancer Cells.** Takashi Matozaki, Choitsu Sakamoto, Toshiya Suzuki, Kohei Matsuda, Tohru Uchida, Osamu Nakano, Ken Wada, Hogara Nishisaki, Yoshitaka Konda, Munehiko Nagao, and Masato Kasuga.

4342 **Phase I Trial of the Murine Monoclonal Anti-G_{D2} Antibody 14G2a in Metastatic Melanoma.** Mansoor N. Saleh, M. B. Khazaeli, Richard H. Wheeler, Edward Dropcho, Tiepu Liu, Marshall Urist, Donald M. Miller, Sharon Lawson, Pam Dixon, Charles H. Russell, and Albert F. LoBuglio.

4348 **Simvastatin, an Inhibitor of Cholesterol Biosynthesis, Shows a Synergistic Effect with *N,N'*-Bis(2-chloroethyl)-*N*-nitrosourea and β-Interferon on Human Glioma Cells.** Maurizio R. Soma, Pietro Pagliarini, Giorgio Butti, Rodolfo Paoletti, Pietro Paoletti, and Remo Fumagalli.

4356 **Epidermal Growth Factor and Transforming Growth Factor α Stimulate or Inhibit Proliferation of a Human Renal Adenocarcinoma Cell Line Depending on Cell Status: Differentiation of the Two Pathways by G Protein Involvement.** A. Argilès, N. Kraft, T. Ootaka, P. Hutchinson, and R. C. Atkins.

4361 **Cytogenetic Alterations Associated with P-Glycoprotein- and Non-P-Glycoprotein-mediated Multidrug Resistance in SW-1573 Human Lung Tumor Cell Lines.** Aggie W. M. Nieuwint, Frank Baas, Joop Wiegant, and Hans Joenje.

4372 **Anoxia-inducible Endonuclease Activity as a Potential Basis of the Genomic Instability of Cancer Cells.** Daniel L. Stoler, Garth R. Anderson, Cheryl A. Russo, Annamaria M. Spina, and Terry A. Beerman.

4379 **Role of Cytochrome P-450 from the Human CYP3A Gene Family in the Potentiation of Morpholino Doxorubicin by Human Liver Microsomes.** Alexander D. Lewis, Derick H. M. Lau, George E. Durán, C. Roland Wolf, and Branimir I. Sikic.

4385 **^{211}At-Methylene Blue for Targeted Radiotherapy of Human Melanoma Xenografts: Treatment of Cutaneous Tumors and Lymph Node Metastases.** Eva M. Link and Robert N. Carpenter.

4391 **Human T-Cell Leukemia Virus Type I or a Related Retrovirus in Patients with Mycosis Fungoides/Sézary Syndrome and Kaposi's Sarcoma.** B. I. Sahai Srivastava, Katalin Banki, and Andras Perl.

4396 **Disposition Characteristics of Macromolecules in the Perfused Tissue-isolated Tumor Preparation.** Hirofumi Imoto, Yumi Sakamura, Kazuhiro Ohkouchi, Ryo Atsumi, Yoshinobu Takakura, Hitoshi Sezaki, and Mitsuru Hashida.

4402 ***In Vitro* Activation of Distinct Molecular and Cellular Phenotypes after Induction of Differentiation in a Human Neuroblastoma Cell Line.** C. Gaetano, K. Matsumoto, and C. J. Thiele.

4408 **Preferential Expression of Immunoreactive Fucosylceramide in Adenocarcinoma of the Lung.** Hiroyuki Yamada, Hideki Ishihara, Hiroshi Kitagawa, Yoshinori Kawabata, Shinji Itoyama, and Isamu Sugawara.

4413 **Role of Endocrine, Autocrine, and Paracrine Interactions in the Development of Mammary Hyperplasia in *Wnt*-1 Transgenic Mice.** Tzu-Ping Lin, Raphael C. Guzman, Rebecca C. Osborn, Gudmundur Thordarson, and Satyabrata Nandi.

4420 **Induction of Uterine Cervical Neoplasias in Mice by Human Papillomavirus Type 16 *E6/E7* Genes.** Toshiyuki Sasagawa, Masaki Inoue, Hirokazu Inoue, Masuo Yutsudo, Osamu Tanizawa, and Akira Hakura.

4427 **Monoclonal Antibody MRK16 Reverses the Multidrug Resistance of Multidrug-resistant Transgenic Mice.** Gerald H. Mickisch, Lee H. Pai, Michael M. Gottesman, and Ira Pastan.

4433 **Combined Antimicrotubule Activity of Estramustine and Taxol in Human Prostatic Carcinoma Cell Lines.** Lisa A. Speicher, Linda Barone, and Kenneth D. Tew.

4441 **Regulation of Intracellular pH in Tumor Cell Lines: Influence of Microenvironmental Conditions.** Michael J. Boyer and Ian F. Tannock.

4448 **Cytotoxicity of Streptavidin-blocked Biotinyl-Ricin Is Retrieved by *in Vitro* Immunotargeting via Biotinyl Monoclonal Antibody.** Bilha Schechter, Ruth Arnon, and Meir Wilchek.

4453 **Radiation Sensitivity *in Vitro* of Primary Tumors and Metastatic Lesions of Malignant Melanoma.** Einar K. Rofstad.

4458 ***In Vitro* Growth Modulation by L-Ascorbic Acid of Colony-forming Cells from Bone Marrow of Patients with Myelodysplastic Syndromes.** Chan H. Park, Bruce F. Kimler, David Bodensteiner, Sean R. Lynch, and Ruth S. Hassanein.

4467 **Amsacrine and Etoposide Hypersensitivity of Yeast Cells Overexpressing DNA Topoisomerase II.** John L. Nitiss, Ya-Xia Liu, Pelle Harbury, Mehrdad Jannatipour, Robin Wasserman, and James C. Wang.

4473 **Repair of DNA and Chromosome Breaks in Cells Exposed to SR 4233 under Hypoxia or to Ionizing Radiation.** Jingli Wang, Kim A. Biedermann, and J. Martin Brown.

4478 **Rational Design and Molecular Effects of a New Topoisomerase II Inhibitor, Azatoxin.** François Leteurtre, Jose Madalengoitia, Ann Orr, Timothy J. Cuzi, Erich Lehnert, Timothy Macdonald, and Yves Pommier.

4484 **Specific Activation of Glucuronide Prodrugs by Antibody-targeted Enzyme Conjugates for Cancer Therapy.** Shing-Ming Wang, Ji-Wang Chern, Ming-Yang Yeh, Joyce Co Ng, Edward Tung, and Steve R. Roffler.

4492 **Benzopyranones and Benzothiopyranones: A Class of Tyrosine Protein Kinase Inhibitors with Selectivity for the *v-abl* Kinase.** Johanna F. Geissler, Joahnnes L. Roesel, Thomas Meyer, Uwe P. Trinks, Peter Traxler, and Nicholas B. Lydon.

4499 **Role of the $\alpha_3\beta_1$ Integrin Receptor in the Proliferative Response of Quiescent Human Melanoma Cells to Fibronectin.** Roberta Mortarini, Angela Gismondi, Angela Santoni, Giorgio Parmiani, and Andrea Anichini.

4507 **K-*ras* Mutation Is an Early Event in Pancreatic Duct Carcinogenesis in the Syrian Golden Hamster.** Wendy L. Cerny, Kathy A. Mangold, and Dante G. Scarpelli.

4514 **Growth of Human Melanocyte Cultures Supported by 12-*O*-Tetradecanoylphorbol-13-acetate Is Mediated through Protein Kinase C Activation.** Yuko Arita, Kevin R. O'Driscoll, and I. Bernard Weinstein.

4522 **Cyclin D1 Messenger RNA Is Inducible by Platelet-derived Growth Factor in Cultured Fibroblasts.** Ewa Surmacz, Krzysztof Reiss, Christian Sell, and Renato Baserga.

4526 **Elevated Membrane Association of Phospholipase C-γ1 in MDA-468 Mammary Tumor Cells.** Ann Mangelsdorf Soderquist, Gordon Todderud, and Graham Carpenter.

4530 **Evidence That the *MCC-APC* Gene Region in 5q21 Is Not the Site for Susceptibility to Hereditary Nonpolyposis Colorectal Carcinoma.** Paivi Peltomaki, Pertti Sistonen, Jukka-Pekka Mecklin, Lea Pylkkänen, Lauri Aaltonen, Stig Nordling, Juha Kere, Heikki Järvinen, Stanley R. Hamilton, Gloria Petersen, Kenneth W. Kinzler, Bert Vogelstein, and Albert de la Chapelle.

4534 **Restricted Oncogenicity of BCR/ABL p190 in Transgenic Mice.** Jan Willem Voncken, Stephen Griffiths, Melvyn F. Greaves, Paul K. Pattengale, Nora Heisterkamp, and John Groffen.

ADVANCES IN BRIEF

4540 **Collagen-induced Activation of the M_r 72,000 Type IV Collagenase in Normal and Malignant Human Fibroblastoid Cells.** Hala S. Azzam and Erik W. Thompson.

4545 **Stimulation by Bombesin and Inhibition by Bombesin/Gastrin-releasing Peptide Antagonist RC-3095 of Growth of Human Breast Cancer Cell Lines.** Tetsu Yano, Jacek Pinski, Kate Groot, and Andrew V. Schally.

4548 **Correlation of Serum Metalloproteinase Levels with Lung Cancer Metastasis and Response to Therapy.** Spiridione Garbisa, Giorgio Scagliotti, Laura Masiero, Carla Di Francesco, Cristina Caenazzo, Maurizio Onisto, Marco Micela, William G. Stetler-Stevenson, and Lance A. Liotta.

4550 **Amplification and/or Overexpression of Platelet-derived Growth Factor Receptors and Epidermal Growth Factor Receptor in Human Glial Tumors.** Timothy P. Fleming, Abha Saxena, W. Craig Clark, James T. Robertson, Edward H. Oldfield, Stuart A. Aaronson, and Iqbal Unnisa Ali.

4554 **Broad Spectrum Neuropeptide Antagonists Inhibit the Growth of Small Cell Lung Cancer *in Vivo*.** Simon Langdon, Tariq Sethi, Alison Ritchie, Morwenna Muir, John Smyth, and Enrique Rozengurt.

LETTERS TO THE EDITOR

4558 **Correspondence re: W. R. Greco *et al.*, Application of a New Approach for the Quantitation of Drug Synergism to the Combination of *cis*-Diamminedichloroplatinum and 1-β-D-Arabinofuranosylcytosine. Cancer Res., *50*: 5318–5327, 1990.**
Letter. Morris C. Berenbaum.
Letter. Jurgen Sühnel.
Reply. William R. Greco and Youcef M. Rustum.

4566 **Announcements**
Eighty-Fourth Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Calendar of Events

4569 **Author Index**

CONTENTS OF VOLUME 52

September 1, Number 17

4571 **Cellular Events Accompanying Regression of Skin Recurrences of Breast Carcinomas Treated with Intralesional Injections of Natural Interferons α and γ.** Luciano Ozzello, David V. Habif, Carolyn M. De Rosa, and Kari Cantell.

4582 ***In Vivo* and *in Vitro* Growth-inhibitory Effect of Bovine Seminal Ribonuclease on a System of Rat Thyroid Epithelial Transformed Cells and Tumors.** Paolo Laccetti, Giuseppe Portella, Maria Rosaria Mastronicola, Aniello Russo, Renata Piccoli, Giuseppe D'Alessio, and Giancarlo Vecchio.

4587 **Clinical Implications of Decreased Retinoblastoma Protein Expression in Acute Myelogenous Leukemia.** Steven M. Kornblau, Hong-Ji Xu, Auro del Giglio, Shi-Xue Hu, Wei Zhang, Leslie Calvert, Miloslav Beran, Elihu Estey, Michael Andreeff, Jose Trujillo, Marjorie A. Cork, Terry L. Smith, William F. Benedict, and Albert Deisseroth.

4591 **Cell Cycle Synchronization and Growth Inhibition by 3-Hydroxypyridin-4-one Iron Chelators in Leukemia Cell Lines.** Katharine P. Hoyes, Robert C. Hider, and John B. Porter.

4600 **Expression of Human Prostatic Acid Phosphatase Activity and the Growth of Prostate Carcinoma Cells.** Ming-Fong Lin, Julie DaVolio, and Renee Garcia-Arenas.

4608 **Effect of Treatment Duration and Glutathione Depletion on Mitomycin C Cytotoxicity *in Vitro*.** Roger R. Perry, Bridget R. Greaves, Uli Rasberry, and Sam C. Barranco

4613 **Rat Prostate Adenocarcinoma Cells Disseminate to Bone and Adhere Preferentially to Bone Marrow-derived Endothelial Cells.** Mahmudul Haq, David Goltzman, Gilles Tremblay, and Pnina Brodt.

4620 **Quantitative Changes in Tumor Metabolism, Partial Pressure of Oxygen, and Radiobiological Oxygenation Status Postradiation.** Jason A. Koutcher, Alan A. Alfieri, Mary L. Devitt, Juong G. Rhee, Alice B. Kornblith, Umar Mahmood, Thomas E. Merchant, and David Cowburn.

4628 **Elevation of Free β Subunit of Human Choriogonadotropin β and Core β Fragment of Human Choriogonadotropin in the Serum and Urine of Patients with Malignant Pancreatic and Biliary Disease.** Henrik Alfthan, Caj Haglund, Peter Roberts, and Ulf-Håkan Stenman.

4634 **Induction by Bufalin of Differentiation of Human Leukemia Cells HL60, U937, and ML1 toward Macrophage/Monocyte-like Cells and Its Potent Synergistic Effect on the Differentiation of Human Leukemia Cells in Combination with Other Inducers.** Lisha Zhang, Kazuyasu Nakaya, Takemi Yoshida, and Yukio Kuroiwa.

4642 **Down-Regulation of Tenascin Expression by Antiprogestins during Terminal Differentiation of Rat Mammary Tumors.** Günter Vollmer, Horst Michna, Kirsten Ebert, and Rudolf Knuppen.

4649 **Analysis of T-Cell Receptor α/β Variability in Lymphocytes Infiltrating a Melanoma Metastasis.** Laurent Ferradini, Sergio Roman-Roman, José Azocar, Marie-Françoise Avril, Sophie Viel, Frédéric Triebel, and Thierry Hercend.

4655 **Expression and Characterization of Mucins Associated with the Resistance to Methotrexate of Human Colonic Adenocarcinoma Cell Line HT29.** Rajvir Dahiya, Thécla Lesuffleur, Kyu-Shik Kwak, James C. Byrd, Alain Barbat, Alain Zweibaum, and Young S. Kim.

4663 **Comparative Antitumor Effects of Hormonal Ablation, Estrogen Agonist, Estrogen Cytotoxic Derivative, and Antiestrogen in the PAIII Rat Prostatic Adenocarcinoma.** Blake Lee Neubauer, Kevin L. Best, Robin L. Goode, Mark L. Heiman, Dennis M. Hoover, David W. Robertson, Michael F. Sarosdy, Carl J. Shaar, Lee R. Tanzer, and Ronald L. Merriman.

4672 **Boron Neutron Capture Therapy for Murine Malignant Gliomas.** Stephen C. Saris, Guido R. Solares, David E. Wazer, Guillermo Cano, Sarah E. Kerley, Melita A. Joyce, Lester S. Adelman, Otto K. Harling, Hywel Madoc-Jones, and Robert G. Zamenhof.

4678 **Cytogenetic Characterization of B-Cell Lymphomas from Severe Combined Immunodeficiency Disease Mice Given Injections of Lymphocytes from Epstein-Barr Virus-positive Donors.** Maya Thangavelu, Leslee Snyder, John Anastasi, Michelle M. Le Beau, Marybeth Kirven, Gaston Picchio, Donald E. Mosier, and Janet D. Rowley.

4682 **Fate and Distribution of 2-Amino-1-methyl-6-phenylimidazo-[4,5-b]pyridine in Mice at a Human Dietary Equivalent Dose.** Kenneth W. Turteltaub, John S. Vogel, Christopher E. Frantz, and Nancy Shen.

4688 **Mutational Specificity of 1,3-Bis(2-chloroethyl)-1-nitrosourea in a Chinese Hamster Ovary Cell Line.** Dana T. Minnick, Martina L. Veigl, and W. David Sedwick.

4696 **Relationship of the Queuine Content of Transfer Ribonucleic Acids to Histopathological Grading and Survival in Human Lung Cancer.** Biing-Shiun Huang, Rong-Tsun Wu, and Kwang-Yu Chien.

4701 **Sensitive Detection of Rare Circulating Neuroblastoma Cells by the Reverse Transcriptase-Polymerase Chain Reaction.** Leonard A. Mattano, Jr., Thomas J. Moss, and Stephen G. Emerson.

4706 **Effect on Cancer Cells of Plasmids That Express Antisense RNA of Human Papillomavirus Type 18.** Cherrilee Steele, Peter G. Sacks, Karen Adler-Storthz, and Edward J. Shillitoe.

4712 **New *S*-Adenosylmethionine Decarboxylase Inhibitors with Potent Antitumor Activity.** Urs Regenass, Giorgio Caravatti, Helmut Mett, Jaroslav Stanek, Peter Schneider, Marcel Muller, Alex Matter, Paula Vertino, and Carl W. Porter.

4719 **Influence of Tamoxifen on Plasma Levels of Insulin-like Growth Factor I and Insulin-like Growth Factor Binding Protein 1 in Breast Cancer Patients.** Per Eystein Lønning, Kerstin Hall, Asbjørn Aakvaag, and Ernst A. Lien.

4724 **K-*ras* Activation in Non-Small Cell Lung Cancer in the Dog.** Susan A. Kraegel, Paul H. Gumerlock, Donald L. Dungworth, Victor I. C. Oreffo, and Bruce R. Madewell.

4728 **Comparisons between Two Monoclonal Antibodies That Bind to the Same Antigen but Have Differing Affinities: Uptake Kinetics and ^{125}I-Antibody Therapy Efficacy in Multicell Spheroids.** Virgina K. Langmuir, Holly L. Mendonca, and David V. Woo.

4735 **Reversal of Multidrug Resistance by Two Novel Indole Derivatives.** Sunil Kadam, Mary Maus, Jennifer Poddig, Steven Schmidt, Ronald Rasmussen, Eugene Novosad, Jacob Plattner, and James McAlpine.

4741 **Mucins Bearing the Cancer-associated Sialosyl-Tn Antigen Mediate Inhibition of Natural Killer Cell Cytotoxicity.** Shunichiro Ogata, Peter J. Maimonis, and Steven H. Itzkowitz.

4747 **GGT to GTT Transversions in Codon 12 of the K-*ras* Oncogene in Rat Renal Sarcomas Induced with Nickel Subsulfide or Nickel Subsulfide/Iron Are Consistent with Oxidative Damage to DNA.** Kathleen G. Higinbotham, Jerry M. Rice, Bhalchandra A. Diwan, Kazimierz S. Kasprzak, Carl D. Reed, and Alan O. Perantoni.

4752 **Elevated DT-Diaphorase Activity and Messenger RNA Content in Human Non-Small Cell Lung Carcinoma: Relationship to the Response of Lung Tumor Xenografts to Mitomycin C.** Alvin M. Malkinson, David Siegel, Gerald L. Forrest, Adi F. Gazdar, Herbert K. Oie, Daniel C. Chan, Paul A. Bunn, Mack Mabry, Donald J. Dykes, Steadman D. Harrison, Jr., and David Ross.

4758 **Resistance of Human Cervical Carcinoma Cells to Tumor Necrosis Factor Correlates with Their Increased Sensitivity to Cisplatin: Evidence of a Role for DNA Repair and Epidermal Growth Factor Receptor.** Kiyohiro Nishikawa, Michael G. Rosenblum, Robert A. Newman, Tej K. Pandita, Walter N. Hittelman, and Nicholas J. Donato.

4766 **Differential Susceptibility of Cultured Human Melanoma Cell Lines to Enhancement by Retinoic Acid of Intercellular Adhesion Molecule 1 Expression.** Zhigang Wang, Yan Cao, Claudio M. D'Urso, and Soldano Ferrone.

4773 **Characterization of Protein Tyrosine Kinases from Human Breast Cancer: Involvement of the c-*src* Oncogene Product.** A. E. Ottenhoff-Kalff, G. Rijksen, E. A. C. M. van Beurden, A. Hennipman, A. A. Michels, and G. E. J. Staal.

4779 **Characterization of a Complementary DNA for Rat Liver Aryl Sulfotransferase IV and Use in Evaluating the Hepatic Gene Transcript Levels of Rats at Various Stages of 2-Acetylaminofluorene-induced Hepatocarcinogenesis.** Tokunbo Yerokun, Janet L. Etheredge, Tom R. Norton, Henry A. Carter, Keun H. Chung, Paul J. Birckbichler, and David P. Ringer.

4787 **Absence of *p53* Gene Mutations in Primary Nasopharyngeal Carcinomas.** Charles H. Spruck III, Yvonne C. Tsai, Dolly P. Huang, Allen S. Yang, William M. Rideout III, Mirella Gonzalez-Zulueta, Peter Choi, Kwok-Wai Lo, Mimi C. Yu, and Peter A. Jones.

4791 **Nonrandom Abnormalities Involving Chromosome 1 and *Harvey-ras-1* Alleles in Rat Mammary Tumor Progression.** C. Marcelo Aldaz, Aaron Chen, Lauren S. Gollahon, Jose Russo, and Konrad Zappler.

4799 **Aberrations of the *p53* Tumor Suppressor Gene in Human Non-Small Cell Carcinomas of the Lung.** Yosuke Kishimoto, Yoshinori Murakami, Masahiko Shiraishi, Kenshi Hayashi, and Takao Sekiya.

4805 **Human Hepatoma Gangliosides: Occurrence of a Novel I-Type Glycolipid with NeuAcα2-6Gal Structure.** Takao Taki, Chiaki Rokukawa, Takeshi Kasama, and Shizuo Handa.

4812 **Selenite Cytotoxicity in Drug Resistant and Nonresistant Human Ovarian Tumor Cells.** Paula B. Caffrey and Gerald D. Frenkel.

ADVANCES IN BRIEF

4817 **Antibody-mediated Specific Binding and Cytotoxicity of Liposome-entrapped Doxorubicin to Lung Cancer Cells *in Vitro*.** Imran Ahmad and Theresa M. Allen

4821 **Platelet-derived Growth Factor-induced Transcription of the Vascular Endothelial Growth Factor Is Mediated by Protein Kinase C.** Günter Finkenzeller, Dieter Marmé, Herbert A. Weich, and Hubert Hug.

4824 **DNA Polymerase β Mutations in Human Colorectal Cancer.** Liming Wang, Umesh Patel, Lagnajita Ghosh, and Sipra Banerjee.

4828 **Accumulation of p53 Protein Correlates with a Poor Prognosis in Human Lung Cancer.** Dennis C. Quinlan, Ann G. Davidson, Carol L. Summers, Herbert E. Warden, and Himanshu M. Doshi.

4832 **Occurrence of *p53* Gene Deletions and Human Papilloma Virus Infection in Human Head and Neck Cancer.** David G. Brachman, Deborah Graves, Everett Vokes, Michael Beckett, Daniel Haraf, Antony Montag, Edward Dunphy, Rosemarie Mick, David Yandell, and Ralph R. Weichselbaum.

MEETING REPORT

4837 **Multistage Carcinogenesis: The Twenty-Second International Symposium of the Princess Takamatsu Cancer Research Fund.** Curtis C. Harris, Setsuo Hirohashi, Nobuyuki Ito, Henry C. Pitot, Takashi Sugimura, Masaaki Terada, and Jun Yokota.

4841 **Announcements**
Eight-Fourth Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Calendar of Events

4844 **Employment Register of the AACR**

4852 **Author Index**

September 15, Number 18

PERSPECTIVES IN CANCER RESEARCH

4853 **Local Cytokine Availability Elicits Tumor Rejection and Systemic Immunity through Granulocyte-T-Lymphocyte Cross-Talk.** Mario P. Colombo, Andrea Modesti, Giorgio Parmiani, and Guido Forni.

4858 **Newt Squamous Carcinoma Proves Phylogenetic Conservation of Tumors as Caricatures of Tissue Renewal.** Nikolaos P. Zilakos, Panagiotis A. Tsonis, Katia Del Rio-Tsonis, and Ralph E. Parchment.

4866 **4-Hydroxynonenal, a Product of Cellular Lipid Peroxidation, Which Modulates c-*myc* and Globin Gene Expression in K562 Erythroleukemic Cells.** Vito M. Fazio, Giuseppina Barrera, Stefano Martinotti, Maria Giulia Farace, Barbara Giglioni, Luigi Frati, Vittorio Manzari, and Mario U. Dianzani.

4872 **Antitumoral Activity of Bombesin Analogues on Small Cell Lung Cancer Xenografts: Relationship with Bombesin Receptor Expression.** Francois Thomas, Francisco Arvelo, Etienne Antoine, Michelle Jacrot, and Marie France Poupon.

4878 **Suppression of Melanoma Cell Motility Factor Receptor Expression by Retinoic Acid.** Reuben Lotan, Brad Amos, Hideomi Watanabe, and Avraham Raz.

4885 **Urinary Mutagenicity and *N*-Acetylation Phenotype in Textile Industry Workers Exposed to Arylamines.** B. Sinués, J. Pérez, M. L. Bernal, M. A. Sáenz, J. Lanuza, and M. Bartolomé.

4890 **Induction of Intercellular Adhesion Molecule 1 on Small Cell Lung Carcinoma Cell Lines by γ-Interferon Enhances Spontaneous and Bispecific Anti-CD3 x Antitumor Antibody-directed Lymphokine-activated Killer Cell Cytotoxicity.** Arata Azuma, Hideo Yagita, Hironori Matsuda, Ko Okumura, and Hisanobu Niitani.

4895 **Metabolic Effects and Kill of Human T-Cell Leukemia by 5-Deazacyclotetrahydrofolate, a Specific Inhibitor of Glycinearnide Ribonucleotide Transformylase.** Gary K. Smith, David S. Duch, Inderjit K. Dev, and Scott H. Kaufmann.

4904 **Cytotoxicity and Antitumor Activity of Carzelesin, a Prodrug Cyclopropylpyrroloindole Analogue.** L. H. Li, T. F. DeKoning, R. C. Kelly, W. C. Krueger, J. P. McGovren, G. E. Padbury, G. L. Petzold, T. L. Wallace, R. J. Ouding, M. D. Prairie, and I. Gebhard.

4914 **The Role of Microvascular Damage in Photodynamic Therapy: The Effect of Treatment on Vessel Constriction, Permeability, and Leukocyte Adhesion.** Victor H. Fingar, T. Jeffery Wieman, Sandra A. Wiehle, and Patricia B. Cerrito.

4922 **Elevation of Thymidylate Synthase following 5-Fluorouracil Treatment Is Prevented by the Addition of Leucovorin in Murine Colon Tumors.** Clasina L. Van der Wilt, Herbert M. Pinedo, Kees Smid, and Godefridus J. Peters.

4929 **Structural Chromosome 1 Aberrations in Transitional Cell Carcinoma of the Bladder: Interphase Cytogenetics Combining a Centromeric, Telomeric, and Library DNA Probe.** Pino J. Poddighe, Frans C. S. Ramaekers, A. Wim G. B. Smeets, G. Peter Vooijs, and Anton H. N. Hopman.

4935 **Low Mitochondrial Proton Leak Due to High Membrane Cholesterol Content and Cytosolic Creatine Kinase as Two Features of the Deviant Bioenergetics of Ehrlich and AS30-D Tumor Cells.** Loris G. Baggetto, Eric Clottes, and Christian Vial.

4942 **Expression of Matrix Metalloproteinase Genes in Transformed Rat Cell Lines of High and Low Metastatic Potential.** Tadaru Sreenath, Lynn M. Matrisian, William Stetler-Stevenson, Sebastiano Gattoni-Celli, and Rudy O. Pozzatti.

4948 **Cell Surface Accessibility of Individual Gangliosides in Malignant Melanoma Cells to Antibodies Is Influenced by the Total Ganglioside Composition of the Cells.** Kenneth O. Lloyd, Claudia M. Gordon, Immac J. Thampoe, and Cheryl DiBenedetto.

4954 **Specific Inhibition of Interleukin 1β Gene Expression by an Antisense Oligonucleotide: Obligatory Role of Interleukin 1 in the Generation of Lymphokine-activated Killer Cells.** Toshiyoshi Fujiwara and Elizabeth A. Grimm.

4960 **γ-Interferon Increases Metaiodobenzylguanidine Incorporation and Retention in Human Neuroblastoma Cells.** Paolo Giuseppe Montaldo, Roberta Carbone, Mirco Ponzoni, and Paolo Cornaglia-Ferraris.

CONTENTS OF VOLUME 52

4965 Effects of Hyperthermia on Blood Flow and *cis*-Diamminedichloroplatinum(II) Pharmacokinetics in Murine Mammary Adenocarcinomas. P. L. Ausmus, A. V. Wilke, and D. L. Frazier.

4969 Tamoxifen Suppresses Tumor Promoter-induced Hydrogen Peroxide Formation by Human Neutrophils. Jong Shiaw Lim, Krystyna Frenkel, and Walter Troll.

4973 Antiproliferative Effects of the Somatostatin Analogue Octreotide (SMS 201-995) on ZR-75-1 Human Breast Cancer Cells *in Vivo* and *in Vitro*. Gisbert Weckbecker, Rong Liu, Levente Tolcsvai, and Christian Bruns.

4979 Chemoprevention of Rat Liver Carcinogenesis by *S*-Adenosyl-L-methionine: A Long-Term Study. Rosa M. Pascale, Vincenzo Marras, Maria M. Simile, Lucia Daino, Giampaola Pinna, Simona Bennati, Monica Carta, Maria A. Seddaiu, Giovanni Massarelli, and Francesco Feo.

4987 A New Tumor-associated Antigen Useful for Serodiagnosis of Hepatocellular Carcinoma, Defined by Monoclonal Antibody KM-2. Yasuyuki Kumagai, Joe Chiba, Tetsutaro Sata, Sachi Ohtaki, and Keiji Mitamura.

4995 Acidic Fibroblast Growth Factor-*Pseudomonas* Exotoxin Chimeric Protein Elicits Antiangiogenic Effects on Endothelial Cells. June Rae Merwin, Mark J. Lynch, Joseph A. Madri, Ira Pastan, and Clay B. Siegall.

5002 Folate Deficiency Enhances the Development of Colonic Neoplasia in Dimethylhydrazine-treated Rats. Marilia L. Cravo, Joel B. Mason, Yogeshwar Dayal, Martha Hutchinson, Donald Smith, Jacob Selhub, and Irwin H. Rosenberg.

5007 Differential Chromatin Structure-dependent Binding of 7-Aminoactinomycin D in Normal and Malignant Bone Marrow Hematopoietic Cells. Trond Stokke, Harald Holte, Erlend B. Smeland, Sverre O. Lie, and Harald B. Steen.

5013 Collateral Sensitivity to Nitrosoureas in Multidrug-resistant Cells Selected with Verapamil. Bernard W. Futscher, Kimberley Campbell, and William S. Dalton.

5018 Oncogenic Human Papillomavirus Type 16 Is Associated with Squamous Cell Cancer of the Male Urethra. John S. Wiener, Edison T. Liu, and Philip J. Walther.

5024 Differences in Basic Fibroblast Growth Factor RNA and Protein Levels in Human Primary Melanocytes and Metastatic Melanoma Cells. Douglas T. Yamanishi, Mark J. Graham, Robert Z. Florkiewicz, Julie A. Buckmeier, and Frank L. Meyskens, Jr.

5030 Human Urinary Bladder Carcinoma Glycoconjugates Expressing T-(Gal(β1-3)GalNAcα1-O-R) and T-like Antigens: A Comparative Study Using Peanut Agglutinin and Poly- and Monoclonal Antibodies. Niels C. Langkilde, Hans Wolf, Henrik Clausen, and Torben F. Ørntoft.

5037 Mammary Tumor Induction by *N*-Methyl-*N*-nitrosourea in Genetically Resistant Copenhagen Rats. Shi-Jiang Lu, Guy Laroye, and Michael C. Archer.

5042 High Incidence of Hepatocellular Carcinomas Induced by a Choline Deficient L-Amino Acid Defined Diet in Rats. Dai Nakae, Hitoshi Yoshiji, Yasushi Mizumoto, Kohsuke Horiguchi, Kazumi Shiraiwa, Kazutoshi Tamura, Ayumi Denda, and Yoichi Konishi.

5046 Multiple Secretion of Matrix Serine Proteinases by Human Gastric Carcinoma Cell Lines. Naohiko Koshikawa, Hidetaro Yasumitsu, Makoto Umeda, and Kaoru Miyazaki.

5054 Localization of Fluorine-18-labeled Mel-14 Monoclonal Antibody $F(ab')_2$ Fragment in a Subcutaneous Xenograft Model. Pradeep K. Garg, Sudha Garg, Darell D. Bigner, and Michael R. Zalutsky.

5061 Role of *p53* Mutations in Endocrine Tumorigenesis: Mutation Detection by Polymerase Chain Reaction-Single Strand Conformation Polymorphism. Katsuhiko Yoshimoto, Hiroyuki Iwahana, Ayumi Fukuda, Toshiaki Sano, Shiro Saito, and Mitsuo Itakura.

5065 Activation of the *trans* Geometry in Platinum Antitumor Complexes: A Survey of the Cytotoxicity of *trans* Complexes Containing Planar Ligands in Murine L1210 and Human Tumor Panels and Studies on Their Mechanism of Action. Nicholas Farrell, Lloyd R. Kelland, John D. Roberts, and Marijo Van Beusichem.

5073 Inhibition of Angiogenesis by Suramin. A. Gagliardi, H. Hadd, and D. C. Collins.

5076 Cellular Kinetics of Rat Mammary Gland Terminal End Bud Epithelium Exposed to *N*-Methyl-*N*-nitrosourea *in Vivo*. Conwell H. Anderson and Craig W. Beattie.

5082 Ectopic Expression of Epidermal Growth Factor Receptors Induces Hormone Independence in ZR-75-1 Human Breast Cancer Cells. Ton van Agthoven, Thecla L. A. van Agthoven, Henk Portengen, John A. Foekens, and Lambert C. J. Dorssers.

5089 A Novel Gene (HIP) Activated in Human Primary Liver Cancer. Chantal Lasserre, Laurence Christa, Marie-Thérèse Simon, Philippe Vernier, and Christian Bréchot.

ADVANCES IN BRIEF

5096 Cytotoxicity of *Clostridium difficile* Toxin A for Human Colonic and Pancreatic Carcinoma Cell Lines. Vladimir M. Kushnaryov, Philip N. Redlich, J. James Sedmak, David M. Lyerly, Tracy D. Wilkins, and Sidney E. Grossberg.

5100 *IGFBP-3* Gene Expression and Estrogen Receptor Status in Human Breast Carcinoma. Z-M. Shao, M. S. Sheikh, J. V. Ordonez, Pei Feng, T. Kute, J-C. Chen, S. Aisner, L. Schnaper, D. LeRoith, C. T. Roberts, Jr., and J. Fontana.

5104 Expression of the Cellular Adhesion Molecule E-Cadherin Is Reduced or Absent in High-Grade Prostate Cancer. Rainy Umbas, Jack A. Schalken, Tilly W. Aalders, Bob S. Carter, Herbert F. M. Karthaus, H. Ewout Schaafsma, Frans M. J. Debruyne, and William B. Isaacs.

5110 Microvascular Pressure Is the Principal Driving Force for Interstitial Hypertension in Solid Tumors: Implications for Vascular Collapse. Yves Boucher and Rakesh K. Jain.

5115 Increase in γ-Glutamylcysteine Synthetase Activity and Steady-State Messenger RNA Levels in Melphalan-resistant DU-145 Human Prostate Carcinoma Cells Expressing Elevated Glutathione Levels. Howard H. Bailey, Jerry J. Gipp, Maureen Ripple, George Wilding, and R. Timothy Mulcahy.

5119 Unifocal Origin of Advanced Human Epithelial Ovarian Cancers. Chi-Ho Mok, Sai-Wah Tsao, Robert C. Knapp, Paula M. Fishbaugh, and Ching C. Lau.

5123 Protection from Chemotherapy-induced Alopecia by 1,25-Dihydroxyvitamin D_3. Joaquin J. Jimenez and Adel A. Yunis.

5126 Radon-induced Deletions in Human Cells: Role of Nonhomologous Strand Rejoining. Louise H. Lutze, Richard A. Winegar, Rick Jostes, Fredrick T. Cross, and James E. Cleaver.

5130 Announcements
Eighty-Fourth Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Calendar of Events

5133 Author Index

October 1, Number 19

5135 Microscopic Localization of Sterically Stabilized Liposomes in Colon Carcinoma-bearing Mice. S. K. Huang, K-D. Lee, K. Hong, D. S. Friend, and D. Papahadjopoulos.

5144 Micropharmacology of Monoclonal Antibodies in Solid Tumors: Direct Experimental Evidence for a Binding Site Barrier. Malik Juweid, Ronald Neumann, Chaing Paik, Miguel J. Perez-Bacete, Jun Sato, William van Osdol, and John N. Weinstein.

5154 P-Glycoprotein Expression during Tumor Progression in the Rat Liver. Grace Bradley, Radhakant Sharma, Srinivasan Rajalakshmi, and Victor Ling.

5162 Development of Liver Tumors in Transforming Growth Factor α Transgenic Mice. Gang-Hong Lee, Glenn Merlino, and Nelson Fausto.

5171 Molecular and Genetic Analysis of Liver Oncogenesis in Transforming Growth Factor α Transgenic Mice. Hitoshi Takagi, Richard Sharp, Christine Hammermeister, Tamra Goodrow, Matthews O. Bradley, Nelson Fausto, and Glenn Merlino.

5178 Establishment of the Human BSMZ Breast Cancer Cell Line, Which Overexpresses the *erbB-2* and *c-myc* Genes. Michiko Watanabe, Hisako Tanaka, Minori Kamada, James H. Okano, Hiroki Takahashi, Ken Uchida, Akira Iwamura, Mikio Zeniya, and Tsuneya Ohno.

5183 Adoptive Transfer of Vβ2-deleting Activity with Host Cells from Mice Implanted with C4 Preneoplastic Hyperplastic Alveolar Nodules. Wei-Zen Wei, Hong Wang, Richard Ficsor-Jacobs, and Robert Pauley.

5190 Loss of Epithelial Markers and Acquisition of Vimentin Expression in Adriamycin- and Vinblastine-resistant Human Breast Cancer Cell Lines. Connie L. Sommers, Susan E. Heckford, Jeffrey M. Skerker, Peter Worland, Jeffrey A. Torri, Erik W. Thompson, Stephen W. Byers, and Edward P. Gelmann.

5198 Cathepsin D as a Prognostic Indicator for Node-negative Breast Cancer Patients Using Both Immunoassays and Enzymatic Assays. Timothy E. Kute, Zhi-Ming Shao, N. Keith Sugg, Rena T. Long, Gregory B. Russell, and L. Douglas Case.

5204 Insulin-like Growth Factor Binding Proteins in Human Breast Cancer Tissue. Fredrika Pekonen, Tuulikki Nyman, Vesa Ilvesmäki, and Seppo Partanen.

5208 Product of the Steel Locus Can Replace Leukemic Cell Interaction. Julio R. Cáceres-Cortés and Trang Hoang.

5213 Flow Cytometric Detection of Drugs Altering the DNA Methylation Pattern. Denis S. F. Biard, Michel Maratrat, Véronique Thybaud, Céline Melcion, and Alain Sarasin.

5219 Quantitative Imaging of a Radiotherapeutic Drug, $Na_2B_{12}H_{11}SH$, at Subcellular Resolution in Tissue Cultures Using Ion Microscopy. Xiaohui Zha, Walter A. Ausserer, and George H. Morrison.

5223 Expression and Functional Role of the p75 Interleukin 2 Receptor Chain on Leukemic Hairy Cells. Livio Trentin, Renato Zambello, Claudia Benati, Marco Cassatella, Carlo Agostini, Pietro Bulian, Fausto Adami, Giuseppe Carra, Giovanni Pizzolo, and Gianpietro Semenzato.

5229 Amplification of Genes within the Chromosome 11q13 Region Is Indicative of Poor Prognosis in Patients with Operable Breast Cancer. Ed Schuuring, Els Verhoeven, Harm van Tinteren, Johannes L. Peterse, Brigitte Nunnink, Frederic B. J. M. Thunnissen, Peter Devilee, Cees J. Cornelisse, Marc J. van de Vijver, Wolter J. Mooi, and Rob J. A. M. Michalides.

5235 Tumor Progression *in Vivo*: Increased Soybean Agglutinin Lectin Binding, *N*-Acetylgalactosamine-specific Lectin Expression, and Liver Metastasis Potential. Martin R. Reese and Donna A. Chow.

5244 Homogeneously Staining Region in Anthracycline-resistant HL-60/AR Cells not Associated with MDR1 Amplification. James E. Gervasoni, Jr., Robert N. Taub, Ming Tsung Yu, Dorothy Warburton, Marlene Sabbath, Stephanie Gilleran, Donald L. Coppock, John D'Alessandri, Sindu Krishna, Michelle Rosado, Michael A. Baker, Jose Lutzky, Eva R. Chanda, James H. Gerlach, Michael J. Pinkoski, Susan P. C. Cole, and Alexander A. Hindenburg.

5250 Antisense-mediated Specific Inhibition of P120 Protein Expression Prevents G_1- to S-Phase Transition. Anna Fonagy, Carol Swiderski, Melissa Dunn, and James W. Freeman.

5257 Epigenetic Silencing of the DNA Repair Enzyme O^6-Methylguanine-DNA Methyltransferase in Mex$^-$ Human Cells. Sarah Cairns-Smith and Peter Karran.

5264 CD24, a Signal-transducing Molecule Expressed on Human B Cells, Is a Major Surface Antigen on Small Cell Lung Carcinomas. David Jackson, Robert Waibel, Erich Weber, John Bell, and Rolf A. Stahel.

5271 Enhanced Sensitivity of Human Colon Tumor Cell Lines *in Vitro* to Recombinant Interferon-γ Is Enhanced by the Novel Immunomodulator Tiazofurin. Jim Klostergaard, Elena Leroux, Zahid H. Siddik, Mojgan Khodadadian, and Stephen P. Tomasovic.

5278 Endogenous Tumor Necrosis Factor Exerts Its Protective Function Intracellularly against the Cytotoxicity of Exogenous Tumor Necrosis Factor. Tetsuro Okamoto, Naoki Watanabe, Naofumi Yamauchi, Yasushi Tsuji, Naoki Tsuji, Yoshinori Itoh, Hiroshi Neda, and Yoshiro Niitsu.

5282 Selenoperoxidase-mediated Cytoprotection against Merocyanine 540-sensitized Photoperoxidation and Photokilling of Leukemia Cells. Fubao Lin, Peter G. Geiger, and Albert W. Girotti.

5291 *p53* Mutations in Breast Cancer. Christopher Coles, Alison Condie, Udi Chetty, C. Michael Steel, H. John Evans, and Jane Prosser.

5299 Phosphorous Metabolite and Cell Cycle Kinetic Response of Two Human Squamous Cell Carcinomas to Radiation. Srinivasan Vijayakumar, Lech Czerski, Anthony Majors, Rafael Valenzuela, Mike Beckett, Ralph Weichselbaum, and Thian Ng.

5307 Highly Sensitive, Specific Detection of O^6-Methylguanine, O^4-Methylthymine, and O^4-Ethylthymine by the Combination of High-Performance Liquid Chromatography Prefractionation, ^{32}P Postlabeling, and Immunoprecipitation. Ho-il Kang, Chieko Konishi, Gertrud Eberle, Manfred F. Rajewsky, Toshio Kuroki, and Nam-ho Huh.

5313 Putrescine-dependent Invasive Capacity of Rat Ascites Hepatoma Cells. Yoshiyuki Ashida, Jun-ichi Kido, Fumiyo Kinoshita, Mizuho Nishino, Kiyoko Shinkai, Hitoshi Akedo, and Hideo Inoue.

5317 Involvement of the Spleen in Preleukemic Development of a Murine Retrovirus-induced Promonocytic Leukemia. Kathryn Nason-Burchenal and Linda Wolff.

5323 Alterations of the *p53* Gene in Human Primary Cervical Carcinoma with and without Human Papillomavirus Infection. Masami Fujita, Masaki Inoue, Osamu Tanizawa, Seiichi Iwamoto, and Takayuki Enomoto.

5329 Marked Enhancement of Rat Urinary Bladder Carcinogenesis by Heat-killed *Escherichia coli*. Masashi Yamamoto, Howard H. Wu, Hitoshi Momose, Alfred Rademaker, and Ryoichi Oyasu.

5334 Expression of the Class VI Intermediate Filament Nestin in Human Central Nervous System Tumors. Jonas Dahlstrand, V. Peter Collins, and Urban Lendahl.

5342 Simian Virus 40 Large T Antigen Directed by Transcriptional Elements of the Human Surfactant Protein C Gene Produces Pulmonary Adenocarcinomas in Transgenic Mice. Kathryn A. Wikenheiser, Jean C. Clark, R. Ilona Linnoila, Mildred T. Stahlman, and Jeffrey A. Whitsett.

5353 Differential Inhibition of the Epidermal Growth Factor-, Platelet-derived Growth Factor-, and Protein Kinase C-mediated Signal Transduction Pathways by the Staurosporine Derivative CGP 41251. Elisabeth Andrejauskas-Buchdunger and Urs Regenass.

5359 Steady-State Messenger RNA and Activity Correlates with Sensitivity to N^1,N^{12}-Bis(ethyl)spermine in Human Cell Lines Representing the Major Forms of Lung Cancer. Robert A. Casero, Jr., Amy R. Mank, Lei Xiao, Jeffrey Smith, Raymond J. Bergeron, and Paul Celano.

5364 Association between Hepatitis C Virus and Hepatocellular Carcinoma Using Assays Based on Structural and Nonstructural Hepatitis C Virus Peptides. Xenophon Zavitsanos, Angelos Hatzakis, Evangelia Kaklamani, Anastasia Tzonou, Nektaria Toupadaki, Caryn Brocksma, Jurgen Chrispeels, Hugo Troonen, Stephanos Hadziyannis, Chung-cheng Hsieh, Harvey Alter, and Dimitrios Trichopoulos.

5368 **Frequent Loss of Heterozygosity for Loci on Chromosome 8p in Hepatocellular Carcinoma, Colorectal Cancer, and Lung Cancer.** Mitsuru Emi, Yoshiyuki Fujiwara, Toshifusa Nakajima, Eiju Tsuchiya, Hitoshi Tsuda, Setsuo Hirohashi, Yoshiharu Maeda, Kouji Tsuruta, Michiko Miyaki, and Yusuke Nakamura.

5373 **Cyclophosphamide Resistance in Medulloblastoma.** Henry S. Friedman, O. Michael Colvin, Scott H. Kaufmann, Susan M. Ludeman, Nancy Bullock, Darell D. Bigner, and Owen W. Griffith.

5379 **Monovalent Immunotoxin Containing Truncated Form of *Pseudomonas* Exotoxin as Potent Antitumor Agent.** Waldemar Debinski and Ira Pastan.

5386 **Effects of Tamoxifen Adjuvant Therapy and a Low-Fat Diet on Serum Binding Proteins and Estradiol Bioavailability in Postmenopausal Breast Cancer Patients.** David P. Rose, Rowan T. Chlebowski, Jeanne M. Connolly, Lovell A. Jones, and Ernst L. Wynder.

ADVANCES IN BRIEF

5391 **Postvaccinal Sarcomas in the Cat: Epidemiology and Electron Probe Microanalytical Identification of Aluminum.** Mattie J. Hendrick, Michael H. Goldschmidt, Frances S. Shofer, Yun-Yu Wang, and Andrew P. Somlyo.

5395 **A Synthetic Antagonist to Laminin Inhibits the Formation of Osteolytic Metastases by Human Melanoma Cells in Nude Mice.** Masamichi Nakai, Gregory R. Mundy, Paul J. Williams, Brendan Boyce, and Toshiyuki Yoneda.

5400 **Activation of Omental Milky Spots and Milky Spot Macrophages by Intraperitoneal Administration of a Streptococcal Preparation, OK-432.** Masataka Shimotsuma, Max W. Simpson-Morgan, and Toshio Takahashi.

5403 **Reduced Expression of the Low Affinity Nerve Growth Factor Receptor in Benign and Malignant Human Prostate Tissue and Loss of Expression in Four Human Metastatic Prostate Tumor Cell Lines.** Beth R. Pflug, Makoto Onoda, John H. Lynch, and Daniel Djakiew.

5407 ***bcl*-2 Gene Transfer Increases Relative Resistance of S49.1 and WEHI7.2 Lymphoid Cells to Cell Death and DNA Fragmentation Induced by Glucocorticoids and Multiple Chemotherapeutic Drugs.** Toshiyuki Miyashita and John C. Reed.

5412 ***In Vivo* and *in Vitro* Characteristics of Interleukin 6-transfected B16 Melanoma Cells.** Wen H. Sun, Regina A. Kreisle, Anthony W. Phillips, and William B. Ershler.

5416 **An Ovarian Tumor Marker with Homology to Vaccinia Virus Contains an IgV-like Region and Multiple Transmembrane Domains.** Ian G. Campbell, Paul S. Freemont, William Foulkes, and John Trowsdale.

5421 **Announcements**
Eighty-Fourth Annual Meeting of the AACR
AACR Special Conferences in Cancer Research
Calendar of Events

5424 **Author Index**

October 1, Number 19, Supplement

Preface
The Editors 5429s

Introduction I
Myron Essex 5430s

Introduction II
Pelayo Correa 5431s

Part I: Time Trends and Pathological Classification

Non-Hodgkin's Lymphoma Time Trends: United States and International Data
Susan S. Devesa and Thomas Fears 5432s

Changes in the Descriptive Epidemiology of Non-Hodgkin's Lymphoma in Great Britain
R. A. Cartwright 5441s

Time Trends of Non-Hodgkin's Lymphoma: Are They Real? What Do They Mean?
Theodore R. Holford, Tongzhang Zheng, Susan T. Mayne, and Lisa A. McKay 5443s

An Overview of the Classification of Non-Hodgkin's Lymphomas: An Integration of Morphological and Phenotypical Concepts
Elaine S. Jaffe, Mark Raffeld, L. Jeffrey Madeiros, and Maryalice Stetler-Stevenson 5447s

Changes in Diagnosis of Non-Hodgkin's Lymphomas ove: Time
Peter M. Banks 5453s

Pathological Classifications of Non-Hodgkin's Lymphoma for Epidemiological Studies
Dennis D. Weisenburger 5456s

Discussion 5462s

Part II: Genetic and Environmental Determinants

Primary Immunodeficiencies: Genetic Risk Factors for Lymphoma
A. H. Filipovich, A. Mathur, D. Kamat, and R. S. Shapiro 5465s

Familial Aggregation of Hematopoietic Malignancies and Risk of Hodgkin's Lymphoma
Martha S. Linet and Linda M. Pottern 5468s

Immunosuppressive Therapy and Immunological Disorders
Leo Kinlen 5474s

Lymphoma Risks in Populations with Altered Immunity—A Search for Mechanism
Robert N. Hoover 5477s

Viruses Other than HIV and Non-Hodgkin's Lymphoma
Nancy E. Mueller, Alejandro Mohar, and Alfred Evans 5479s

Epidemiological and Biological Study of Acquired Immunodeficiency Syndrome-related Lymphoma in the County of Los Angeles: Preliminary Results
Alexandra M. Levine, Darryl Shibata, Jane Sullivan-Halley, Bharat Nathwani, Russell Brynes, Marilyn L. Slovak, Suzanne Mahterian, C. Lynn Riley, Lawrence Weiss, Paul H. Levine, Suraiya Rasheed, and Leslie Bernstein 5482s

Pesticides and Non-Hodgkin's Lymphoma
Shelia Hoar Zahm and Aaron Blair 5485s

Radiation and Non-Hodgkin's Lymphoma
John D. Boice, Jr. 5489s

Nutritional Factors and the Development of Non-Hodgkin's Lymphoma: A Review of the Evidence
Scott Davis 5492s

Increasing Incidence of Non-Hodgkin's Lymphoma: Occupational and Environmental Factors
Neil Pearce and Peter Bethwaite 5496s

Comments on Occupational and Environmental Factors in the Origin of Non-Hodgkin's Lymphoma
Aaron Blair, Athena Linos, Patricia A. Stewart, Leon F. Burmeister, Robert Gibson, George Everett, Leonard Schuman, and Kenneth P. Cantor 5501s

Non-Hodgkin's Lymphoma and Occupational Exposure
Paul A. Scherr, George B. Hutchison, and Richard S. Neiman 5503s

Prior Medication Use and Health History as Risk Factors for Non-Hodgkin's Lymphoma: Preliminary Results from a Case-Control Study in Los Angeles County
Leslie Bernstein and Ronald K. Ross 5510s

Does Chronic Fatigue Syndrome Predispose to Non-Hodgkin's Lymphoma?
Paul H. Levine, Daniel Peterson, Faye L. McNamee, Karen O'Brien, Gloria Gridley, Mary Hagerty, Jane Brady, Thomas Fears, Martin Atherton, and Robert Hoover 5516s

Discussion 5518s

CONTENTS OF VOLUME 52

Part III: Molecular and Immunoregulatory Mechanisms

Pathogenetic Mechanisms in B-Cell Non-Hodgkin's Lymphomas in Humans
Michael Potter 5522s

Molecular Basis of Lymphomagenesis
Ian Magrath 5529s

Characterization of Chromosome 11 Translocation Breakpoints at the bcl–1 and PRAD1 Loci in Centrocytic Lymphoma
Michael E. Williams, Steven H. Swerdlow, Carol L. Rosenberg, and Andrew Arnold 5541s

A Measure of Genomic Instability and Its Relevance to Lymphomagenesis
Ilan R. Kirsch and Stanley Lipkowitz 5545s

Antigen Selection in Human Lymphomagenesis
David W. Bahler, Andrew D. Zelenetz, Thomas T. Chen, and Ronald Levy 5547s

Epstein-Barr Virus-induced Human B-Cell Lymphomas in SCID Mice Reconstituted with Human Peripheral Blood Leukocytes
Donald E. Mosier, Gastón R. Picchio, Stephen M. Baird, Ryo Kobayashi, and Thomas J. Kipps 5552s

Follicular Dendritic Cells: B-Cell Proliferation and Maturation
Andras K. Szakal and John G. Tew 5554s

The Past Is Prologue: The Use of Serum Banks in Cancer Research
Alfred S. Evans and Nancy E. Mueller 5557s

Applications of Experimental Techniques to Epidemiological Studies of Non-Hodgkin's Lymphoma: Use of Archival Tissues
Paul H. Levine 5561s

Discussion 5562s

Part IV: Summaries and Conclusions

Quantification of the Impact of Known Risk Factors on Time Trends in Non-Hodgkin's Lymphoma Incidence
Patricia Hartge and Susan S. Devesa 5566s

Time Trends and Pathological Classification: A Summary
G. Iris Obrams and Gregory O'Conor 5570s

Research Directions and General Discussion: A Summary
Nancy E. Mueller and Joseph F. Fraumeni, Jr. 5571s

Molecular and Immunoregulatory Mechanisms: A Summary
Michael Potter 5572s

Conclusion/Perspective I
Myron Essex 5573s

Conclusion/Perspective II
Pelayo Correa 5574s

October 15, Number 20

PERSPECTIVES IN CANCER RESEARCH

5575 **Aspirin and the Potential Role of Prostaglandins in Colon Cancer.** Lawrence J. Marnett.

5590 **The Effect of an Amino Acid-lowering Diet on the Rate of Melphalan Entry into Brain and Xenotransplanted Glioma.** Dennis R. Groothuis, Bodo E. Lippitz, Istvan Fekete, Kurt E. Schlageter, Peter Molnar, O. Michael Colvin, Charles R. Roe, Darell D. Bigner, and Henry S. Friedman.

5597 **Loss of the Metastatic Phenotype by a Human Epidermoid Carcinoma Cell Line, HEp-3, Is Accompanied by Increased Expression of Tissue Inhibitor of Metalloproteinase 2.** Jacqueline E. Testa.

5604 **Modulation of Protein Kinase C-γ by Phorbol Esters in the Monoblastoid U937 Cell.** D. Kirk Ways, Berniece R. Messer, Trudy O. Garris, Weixi Qin, Paul P. Cook, and Peter J. Parker.

5610 **Antilymphoma Activity of Human γδ T-Cells in Mice with Severe Combined Immune Deficiency.** Vera Malkovska, Francine K. Cigel, Nicholas Armstrong, Barry E. Storer, and Richard Hong.

5617 **Genotoxicity of Environmental Agents in Human Mammary Epithelial Cells.** Sandra R. Eldridge, Michael N. Gould, and Byron E. Butterworth.

5622 **DNA Strand Breaks and DNA Cross-Links in Peripheral Mononuclear Blood Cells of Ovarian Cancer Patients during Chemotherapy with Cyclophosphamide/Carboplatin.** Jan Georg Hengstler, Juergen Fuchs, and Franz Oesch.

5627 **Proposed Role of Phosphatidic Acid in the Extracellular Control of the Transition from G_2 Phase to Mitosis Exerted by Epidermal Growth Factor in A431 Cells.** Marietta Kaszkin, James Richards, and Volker Kinzel.

5635 **Chemoprevention of Colon Carcinogenesis by the Synthetic Organoselenium Compound 1,4-Phenylenebis(methylene)selenocyanate.** Bandaru S. Reddy, Abraham Rivenson, Nalini Kulkarni, Pramod Upadhyaya, and Karam El-Bayoumy.

5641 **Particular Types of Tumor Cells Have the Capacity to Convert Transforming Growth Factor β from a Latent to an Active Form.** Hidekazu Takiuchi, Tsuyoshi Tada, Xiao-Fei Li, Masato Ogata, Tatehiko Ikeda, Shigeyoshi Fujimoto, Hiromi Fujiwara, and Toshiyuki Hamaoka.

5647 **Expression of Carcinoembryonic Antigen and Its Predicted Immunoglobulin-like Domains in HeLa Cells for Epitope Analysis.** Laura J. F. Hefta, Fun-Shan Chen, Michael Ronk, Sybille L. Sauter, Virender Sarin, Shinzo Oikawa, Hiroshi Nakazato, Stanley Hefta, and John E. Shively.

5656 **Reversal of Basic Fibroblast Growth Factor-mediated Autocrine Cell Transformation by Aromatic Anionic Compounds.** Miriam Benezra, Israel Vlodavsky, Avner Yayon, Rachel Bar-Shavit, John Regan, Michael Chang, and Shmuel Ben-Sasson.

5663 **Immunization of Colorectal Cancer Patients with Modified Ovine Submaxillary Gland Mucin and Adjuvants Induces IgM and IgG Antibodies to Sialylated Tn.** Kevin P. O'Boyle, Rochelle Zamore, Sucharita Adluri, Alfred Cohen, Nancy Kemeny, Sydney Welt, Kenneth O. Lloyd, Herbert F. Oettgen, Lloyd J. Old, and Philip O. Livingston.

5668 **Sequence Specificity of Aflatoxin B_1-induced Mutations in a Plasmid Replicated in Xeroderma Pigmentosum and DNA Repair Proficient Human Cells.** Dan D. Levy, John D. Groopman, Susan E. Lim, Michael M. Seidman, and Kenneth H. Kraemer.

5674 **Sensitivity to Novel Platinum Compounds of Panels of Human Lung Cancer Cell Lines with Acquired and Inherent Resistance to Cisplatin.** Peter R. Twentyman, Karen A. Wright, Prakash Mistry, Lloyd R. Kelland, and Barry A. Murrer.

5681 **A Region of Antisense RNA from Human p120 cDNA with High Homology to Mouse p120 cDNA Inhibits NIH 3T3 Proliferation.** Benigno C. Valdez, Laszlo Perlaky, Yasuo Saijo, Dale Henning, Cihui Zhu, Rose K. Busch, Wei-Wei Zhang, and Harris Busch.

5687 **Lethality, DNA Alkylation, and Cell Cycle Effects of Adozelesin (U-73975) on Rodent and Human Cells.** B. K. Bhuyan, K. S. Smith, E. G. Adams, G. L. Petzold, and J. P. McGovren.

5693 **Antigen-specific Activity of Carcinoma-reactive BR64-Doxorubicin Conjugates Evaluated *in Vitro* and in Human Tumor Xenograft Models.** Pamela A. Trail, David Willner, Shirley J. Lasch, Arris J. Henderson, Robert S. Greenfield, Dalton King, Mary E. Zoeckler, and Gary R. Braslawsky.

5701 **Characterization of Tumor Cell Resistance to 4′-Deoxy-4′-iododoxorubicin Developed in Ehrlich Ascites Cells *in Vivo*.** Ellen Friche, Mary K. Danks, and William T. Beck.

5707 **Carotenoids Up-Regulate *Connexin43* Gene Expression Independent of Their Provitamin A or Antioxidant Properties.** Li-Xin Zhang, Robert V. Cooney, and John S. Bertram.

5713 **Antitumor Effects of a Bispecific Antibody Targeting CA19-9 Antigen and CD16.** Irma Garcia de Palazzo, Michele Holmes, Cicek Gercel-Taylor, and Louis M. Weiner.

5720 **Synchronization of Breast Cancer Cell Proliferation *in Vivo* by Combined Hormonal and Polyamine Manipulation.** Andrea Manni, Sonny Khin, Neil Biser, Hugh English, Betty Badger, Juliann Martel, and Laurence Demers.

5725 **Glycosylation Pathways in the Biosynthesis of Gangliosides in Melanoma and Neuroblastoma Cells: Relative Glycosyltransferase Levels Determine Ganglioside Patterns.** Shutian Ruan and Kenneth O. Lloyd.

5732 **Incidence of c-Ki-*ras* Activation in *N*-Methyl-*N*-nitrosourea-induced Mammary Carcinomas in Pituitary-isografted Mice.** Raphael C. Guzman, Rebecca C. Osborn, Steven M. Swanson, Ramasamy Sakthivel, Soo-In Hwang, Shigeki Miyamoto, and Satyabrata Nandi.

5738 **FLT4 Receptor Tyrosine Kinase Contains Seven Immunoglobulin-like Loops and Is Expressed in Multiple Human Tissues and Cell Lines.** Katri Pajusola, Olga Aprelikova, Jaana Korhonen, Arja Kaipainen, Liisa Pertovaara, Riitta Alitalo, and Kari Alitalo.

5744 **Stage-specific Expression of Cancer-associated Type 1 and Type 2 Chain Polylactosamine Antigens in the Developing Pancreas of Human Embryos.** Xiao-Hui Tuo, Shigeyuki Itai, Junko Nishikata, Tohru Mori, Osamu Tanaka, and Reiji Kannagi.

5752 **Estrogen Receptor-directed Radiotoxicity with Auger Electrons: Specificity and Mean Lethal Dose.** Eugene R. DeSombre, Babak Shafii, Robert N. Hanson, Paola C. Kuivanen, and Alun Hughes.

5759 ***N*-(4′-Hydroxyphenylacetyl)palytoxin: A Palytoxin Prodrug That Can Be Activated by a Monoclonal Antibody-Penicillin G Amidase Conjugate.** Gary S. Bignami, Peter D. Senter, Paul G. Grothaus, Keith J. Fischer, Tom Humphreys, and Philip M. Wallace.

5765 **Perioperative Immunotherapy with Recombinant Interleukin 2 in Patients Undergoing Surgery for Colorectal Cancer.** Paul H. Nichols, Carol W. Ramsden, Ursula Ward, Peter C. Sedman, and John N. Primrose.

5770 **Cadherin Dysfunction in a Human Cancer Cell Line: Possible Involvement of Loss of α-Catenin Expression in Reduced Cell-Cell Adhesiveness.** Yutaka Shimoyama, Akira Nagafuchi, Shin Fujita, Masahiro Gotoh, Masatoshi Takeichi, Shoichiro Tsukita, and Setsuo Hirohashi.

CONTENTS OF VOLUME 52

5775 **Phase II Trial of Suramin in Patients with Advanced Renal Cell Carcinoma: Treatment Results, Pharmacokinetics, and Tumor Growth Factor Expression.** Robert J. Motzer, David M. Nanus, Paul O'Moore, Howard I. Scher, Dean F. Bajorin, Victor Reuter, William P. Tong, Jacqueline Iversen, Carl Louison, Anthony P. Albino, and George J. Bosl.

5780 **Absence of HSP28 Synthesis and Phosphorylation during the Development of Chronic Thermotolerance in Murine L929 Cells.** Yong J. Lee, Zi-Zheng Hou, LindaLi Curetty, Michael J. Borrelli, and Peter M. Corry.

5788 **Genomic Rearrangements in Mouse C3H/10T½ Cells Transformed by X-Rays, UV-C, and 3-Methylcholanthrene, Detected by a DNA Fingerprint Assay.** Benoit Paquette and John B. Little.

5794 **Inhibitory Effect of 2-Deoxy-D-glucose on Liver Tumor Growth in Rats.** O. Cay, M. Radnell, B. Jeppsson, B. Ahrén, and S. Bengmark.

5797 **Gene-specific Oligonucleotide Probes for α, μ, π, and Microsomal Rat Glutathione *S*-transferases: Analysis of Liver Transferase Expression and Its Modulation by Hepatic Enzyme Inducers and Platinum Anticancer Drugs.** David J. Waxman, Scott S. Sundseth, Pramod K. Srivastava, and David P. Lapenson.

5803 **Inhibition of Cell Attachment by Selenite.** Lin Yan and Gerald D. Frenkel.

ADVANCES IN BRIEF

5808 **Expression Level of the *nm23* Gene in Clonal Populations of Metastatic Murine and Human Neoplasms.** Robert Radinsky, Herschel Z. Weisberg, Alexander N. Staroselsky, and Isaiah J. Fidler.

5815 **Fine-Scale Deletion Mapping of the Distal Long Arm of Chromosome 6 in 70 Human Ovarian Cancers.** Susumu Saito, Hiroko Saito, Sumiko Koi, Satoru Sagae, Ryuichi Kudo, Junko Saito, Kiichiro Noda, and Yusuke Nakamura.

5818 **Effective α-Particle-mediated Radioimmunotherapy of Murine Leukemia.** Richard B. Huneke, C. Greg Pippin, Robert A. Squire, Martin W. Brechbiel, Otto A. Gansow, and Mette Strand.

5821 **Isolation of a Prostate Carcinoma Cell Proliferation-inhibiting Factor from Human Seminal Plasma and Its Similarity to Transforming Growth Factor β.** Balakrishna L. Lokeshwar and Norman L. Block.

5826 **Increased Inosine-5′-phosphate Dehydrogenase Gene Expression in Solid Tumor Tissues and Tumor Cell Lines.** F. R. Collart, C. B. Chubb, B. L. Mirkin, and E. Huberman.

5829 **Antitumor Activity of the Type 1 Plasminogen Activator Inhibitor and Cytotoxic Conjugate *in Vitro*.** Jerzy Jankun.

5833 **Structure and Expression of Human *Fli*-1 Gene.** D. D. K. Prasad, Veena N. Rao, and E. Shyam P. Reddy.

5838 **Pharmacokinetic Analysis of the Perivascular Distribution of Bifunctional Antibodies and Haptens: Comparison with Experimental Data.** Laurence T. Baxter, Fan Yuan, and Rakesh K. Jain.

5845 **Tumor Cell Surface-associated Binding Site for the *M*, 72,000 Type IV Collagenase.** Hervé P. Emonard, Albert G. Remacle, Agnès C. Noel, Jean-Alexis Grimaud, William G. Stetler-Stevenson, and Jean-Michel Foidart.

5849 **Announcements**
Eighty-fourth Annual Meeting of the AACR
New Format for Annual Meetings of the American Association for Cancer Research Beginning in 1994
AACR Special Conferences in Cancer Research
Calendar of Events

5852 **Author Index**

November 1, Number 21

5853 **Distribution of Cells Expressing myc Proteins in Human Colorectal Epithelium, Polyps, and Malignant Tumors.** Mona F. Melhem, Arnold I. Meisler, Gene G. Finley, Warren H. Bryce, Matthew O. Jones, Ilse I. Tribby, James M. Pipas, and Raymond A. Koski.

5865 **Down-Regulation of Keratin 14 Gene Expression after v-Ha-*ras* Transfection of Human Papillomavirus-immortalized Human Cervical Epithelial Cells.** P. E. Bowden, C. D. Woodworth, J. Doniger, and J. A. DiPaolo.

5872 **Cellular Transformation by a Unique Isolate of Human Papillomavirus Type 11.** Ronald C. McGlennen, Jyotsna Ghai, Ronald S. Ostrow, Kurt LaBresh, John F. Schneider, and Anthony J. Faras.

5879 **A Comparison of the Abilities of Nitrobenzylthioinosine, Dilazep, and Dipyridamole to Protect Human Hematopoietic Cells from 7-Deazaadenosine (Tubercidin).** Carol E. Cass, Karen M. King, Jencet T. Montaño, and Anna Janowska-Wieczorek.

5887 **Epidermal Growth Factor Receptor Monoclonal Antibody Inhibits Constitutive Receptor Phosphorylation, Reduces Autonomous Growth, and Sensitizes Androgen-independent Prostatic Carcinoma Cells to Tumor Necrosis Factor α.** Chau-Jye Fong, Edward R. Sherwood, John Mendelsohn, Chung Lee, and James M. Kozlowski.

5893 **Decreased P-Glycoprotein Expression in Multidrug-sensitive and -resistant Human Myeloma Cells Induced by the Cytokine Leukoregulin.** Charles H. Evans and Patricia D. Baker.

5900 **Time Dependence of DNA Lesions and Growth Inhibition by ICI D1694, a New Quinazoline Antifolate Thymidylate Synthase Inhibitor.** Ming-biao Yin, Manoel A. Guimaraes, Zheng-gang Zhang, Mark A. Arredondo, and Youcef M. Rustum.

5906 **Modulation of Colonic Epithelial Cell Proliferation, Histone Acetylation, and Luminal Short Chain Fatty Acids by Variation of Dietary Fiber (Wheat Bran) in Rats.** Lidia C. Boffa, Joanne R. Lupton, Maria R. Mariani, Marcello Ceppi, Harold L. Newmark, Alessandra Scalmati, and Martin Lipkin.

5913 **The T-Cell Receptor *Vβ* Gene Usage in Tumor-infiltrating Lymphocytes and Blood of Patients with Hepatocellular Carcinoma.** Eckhart Weidmann, Theresa L. Whiteside, Roberto Giorda, Ronald B. Herberman, and Massimo Trucco.

5921 **Cytotoxicity of CD3-Ricin A Chain Immunotoxins in Relation to Cellular Uptake and Degradation Kinetics.** Ypke V. J. M. van Oosterhout, Frank W. M. B. Preijers, Hans M. C. Wessels, and Theo de Witte.

5926 **Effects of 17β-Estradiol Metabolites on Cell Cycle Events in MCF-7 Cells.** Mona-Liza Lottering, Marianne Haag, and Johanna C. Seegers.

5933 **Phase I and Endocrine Study of Exemestane (FCE 24304), a New Aromatase Inhibitor, in Postmenopausal Women.** T. R. Jeffry Evans, Enrico Di Salle, Giorgio Ornati, Mercedes Lassus, Margherita Strolin Benedetti, Elio Pianezzola, and R. Charles Coombes.

5940 **Phase II Preclinical Drug Screening in Human Tumor Xenografts: A First European Multicenter Collaborative Study.** Epie Boven, Benjamin Winograd, Dietmar P. Berger, M. Patrick Dumont, Boudewijn J. M. Braakhuis, Øystein Fodstad, Simon Langdon, and Heiner H. Fiebig.

5948 **Identification of Immunogenic Human Melanoma Antigens in a Polyvalent Melanoma Vaccine.** Jean-Claude Bystryn, Milagros Henn, Joseph Li, and Susan Shroba.

5954 **A Murine Model for Antibody-directed Targeting of Vascular Endothelial Cells in Solid Tumors.** Francis J. Burrows, Yoshihiko Watanabe, and Philip E. Thorpe.

5963 **Receptors for Interleukin 2 on Human Squamous Cell Carcinoma Cell Lines and Tumor *in Situ*.** Eckhart Weidmann, Manuela Sacchi, Stephane Plaisance, Dae Seog Heo, Satoshi Yasumura, Wen-chang Lin, Jonas T. Johnson, Ronald B. Herberman, Bruno Azzarone, and Theresa L. Whiteside.

5971 **Mucin Gene Expression in Colonic Tissues and Cell Lines.** S. Ogata, H. Uchara, A. Chen, and S. H. Itzkowitz.

5979 **Differential Expression of *ras* Protooncogenes during *in Vitro* Differentiation of Human Erythroleukemia Cells.** M. Dolores Delgado, Ana F. Quincoces, M. Teresa Gomez-Casares, Carlos A. Martinez, M. Angeles Cuadrado, Carlos Richard, and Javier Leon.

5985 **Expression of Tumor-associated Epitopes on Epstein-Barr Virus-immortalized B-Cells and Burkitt's Lymphomas Transfected with Epithelial Mucin Complementary DNA.** Keith R. Jerome, Dawen Bu, and Olivera J. Finn.

5991 **Presence of *ras* Oncogene Mutations and Human Papillomavirus DNA in Human Prostate Carcinomas.** Khurshid Anwar, Kazuya Nakakuki, Taizo Shiraishi, Hironobu Naiki, Ryuichi Yatani, and Manabu Inuzuka.

5997 **Frequent *p53* Mutations in Head and Neck Cancer.** Kenneth D. Somers, M. Anne Merrick, Martha E. Lopez, Leonard S. Incognito, Gary L. Schechter, and Graham Casey.

6001 **Human Placental Cells Transformed with Temperature-sensitive Simian Virus 40 Are Immortalized and Mimic the Phenotype of Invasive Cytotrophoblasts at Both Permissive and Nonpermissive Temperatures.** Susan K. Logan, Susan J. Fisher, and Caroline H. Damsky.

6010 **^{23}Na-Nuclear Magnetic Resonance Imaging of Tumor Blood Flow: Spatial and Temporal Heterogeneity in a Tissue-isolated Mammary Adenocarcinoma.** Clifford J. Eskey, Alan P. Koretsky, Michael M. Domach, and Rakesh K. Jain.

6020 **Fibrosarcoma Cells Transduced with the *IL-6* Gene Exhibit Reduced Tumorigenicity, Increased Immunogenicity, and Decreased Metastatic Potential.** Craig A. Mullen, Melissa M. Coale, Anna T. Levy, William G. Stetler-Stevenson, Lance A. Liotta, Stephen Brandt, and R. Michael Blaese.

6020 **Fibrosarcoma Cells Transduced with the *IL-6* Gene Exhibit Reduced Tumorigenicity, Increased Immunogenicity, and Decreased Metastatic Potential.** Craig A. Mullen, Melissa M. Coale, Anna T. Levy, William G. Stetler-Stevenson, Lance A. Liotta, Stephen Brandt, and R. Michael Blaese.

6025 **Inhibitory Effect of Somatostatin Analogue RC-160 on the Growth of Hepatic Metastases of Colon Cancer in Rats: A Study with Magnetic Resonance Imaging.** Yunfeng Qin, Marc Van Cauteren, Michel Osteaux, Andrew V. Schally, and Gerard Willems.

6031 **Gastrin Stimulates Ca^{2+} Mobilization and Clonal Growth in Small Cell Lung Cancer Cells.** Tariq Sethi and Enrique Rozengurt.

6036 **Targeted Therapy of Athymic Mice Bearing GW-39 Human Colonic Cancer Micrometastases with ^{131}I-labeled Monoclonal Antibodies.** Rosalyn D. Blumenthal, Robert M. Sharkey, Lemuel Haywood, Ana M. Natale, George Y. Wong, Jeffrey A. Siegel, Stephen J. Kennel, and David M. Goldenberg.

6045 **Membrane Peroxidative Damage Enhancement by the Ether Lipid Class of Antineoplastic Agents.** Brett A. Wagner, Garry R. Buettner, and C. Patrick Burns.

6052 **Identification of the Cross-Link between Human *O*^{6}-Methylguanine-DNA Methyltransferase and Chloroethylnitrosourea-treated DNA.** Prescilla E. Gonzaga, Philip M. Potter, Tian-qi Niu, Dong Yu, David B. Ludlum, Joseph A. Rafferty, Geoffrey P. Margison, and Thomas P. Brent.

6059 **Interleukin 4 Receptor Expression and Growth Inhibition of Gastric Carcinoma Cells by Interleukin 4.** Takashi Morisaki, Dale H. Yuzuki, Robert T. Lin, Leland J. Foshag, Donald L. Morton, and Dave S. B. Hoon.

6066 **Magnetic Resonance Diffusion Imaging Detects Structural Damage in Biological Tissues upon Hyperthermia.** Kwan Hon Cheng and Marissa Hernandez.

6074 **Somatostatin Receptors in Human Renal Cell Carcinomas.** Jean-Claude Reubi and Larry Kvols.

6079 **Deletions of 17p and *p53* Mutations in Preneoplastic Lesions of the Lung.** Gabriella Sozzi, Monica Miozzo, Rosangela Donghi, Silvana Pilotti, Claudia T. Cariani, Ugo Pastorino, Giuseppe Della Porta, and Marco A. Pierotti.

ADVANCES IN BRIEF

6083 **The *RCK* Gene Associated with t(11;14) Translocation Is Distinct from the *MLL/ALL-1* Gene with t(4;11) and t(11;19) Translocations.** Yukihiro Akao, Masao Seto, Kazuhito Yamamoto, Shinsuke Iida, Shinpei Nakazawa, Johji Inazawa, Tatsuo Abe, Toshitada Takahashi, and Ryuzo Ueda.

6088 **Levels of *nm23* Messenger RNA in Metastatic Malignant Melanomas: Inverse Correlation to Disease Progression.** Vivi Ann Flørenes, Steinar Aamdal, Ola Myklebost, Gunhild M. Maelandsmo, Øyvind S. Bruland, and Øystein Fodstad.

6092 ***p53* Mutation and Protein Accumulation during Multistage Human Esophageal Carcinogenesis.** William P. Bennett, Monica C. Hollstein, Robert A. Metcalf, Judith A. Welsh, A. He, Si-min Zhu, Inca Kusters, James H. Resau, Benjamin F. Trump, David P. Lane, and Curtis C. Harris.

6098 **Mutation of *p53* Gene in Hepatocellular Carcinoma in Taiwan.** Jin-Chuan Shen, Guan-Tarn Huang, Po-Huang Lee, Jui-Chen Chang, Huey-Chi Chou, Ming-Yang Lai, Jin-Town Wang, Hsuan-Shu Lee, Ling-Na Shih, Pei-Ming Yang, Teh-Hong Wang, and Ding-Shinn Chen.

6101 **Prognostic Value of Urokinase-type Plasminogen Activator in 671 Primary Breast Cancer Patients.** John A. Foekens, Manfred Schmitt, Wim L. J. van Putten, Harry A. Peters, Marijke Bontenbal, Fritz Janicke, and Jan G. M. Klijn.

6106 **Immunogenetic Influences on the Initiation Stage of the Cutaneous Chemical Carcinogenesis Pathway.** Craig A. Elmets, Syed I. A. Zaidi, David R. Bickers, and Hasan Mukhtar.

6110 **Detection of Hematogenous Micrometastasis in Patients with Prostate Cancer.** Jose G. Moreno, Carlo M. Croce, Rainer Fischer, Maria Monne, Pirkko Vihko, S. Grant Mulholland, and Leonard G. Gomella.

6113 ***p53* Mutations in Formaldehyde-induced Nasal Squamous Cell Carcinomas in Rats.** Leslie Recio, Susan Sisk, Linda Pluta, Edilberto Bermudez, Elizabeth A. Gross, Zhuchu Chen, Kevin Morgan, and Cheryl Walker.

6117 **Nonlinkage of 16q Markers to Familial Predisposition to Wilms' Tumor.** Vicki Huff, Anthony E. Reeve, Mark Leppert, Louise C. Strong, Edwin C. Douglass, Clementina F. Geiser, Frederick P. Li, Anna Meadows, David F. Callen, Gilbert Lenoir, and Grady F. Saunders.

6121 **Human Small Cell Lung Cancer Expresses the Octamer DNA-binding and Nervous System-specific Transcription Factor N-Oct 3 (Brain-2).** Edgar Schreiber, Andreas Himmelmann, Ursula Malipiero, Andreas Tobler, Rolf Stahel, and Adriano Fontana.

6125 **Inherited *WT1* Mutation in Denys-Drash Syndrome.** Max J. Coppes, Gerrit Jan Liefers, Mariko Higuchi, Arthur B. Zinn, J. Williamson Balfe, and Bryan R. G. Williams.

MEETING REPORT

6129 **The Role of Cytokines in the Regulation of Cell Function and in the Pathogenesis of Disease: A Pathology A/Pathology B Study Section Workshop—Working Report from the Division of Research Grants, National Institutes of Health.** Philip Furmanski, Eric G. Neilson, Jaswant S. Bhorjee, and Martin Padarathsingh.

6134 **Announcements**
Eighty-Fourth Annual Meeting of the AACR
New Format for Annual Meetings of the AACR Beginning in 1994
AACR Special Conferences in Cancer Research
Recent Deaths
Calendar of Events

6138 **Author Index**

CONTENTS OF VOLUME 52

November 15, Number 22

6139 **Expression of *c-kit* Receptor in Normal and Transformed Human Nonlymphoid Tissues.** Pier Giorgio Natali, Maria Rita Nicotra, Irmi Sures, Eugenio Santoro, Aldo Bigotti, and Axel Ullrich.

6144 **Retinoid Status and the Control of Keratin Expression and Adhesion during the Histogenesis of Squamous Metaplasia of Tracheal Epithelium.** Francesca Lancillotti, Nadine Darwiche, Giulia Celli, and Luigi M. De Luca.

6153 **Mouse Monoclonal Antibodies Which Recognize a Human (β1–4)Galactosyltransferase Associated with Tumor in Body Fluids.** Morito Uemura, Takashi Sakaguchi, Takao Uejima, Shiro Nozawa, and Hisashi Narimatsu.

6158 **Complementary DNA Cloning for Galactosyltransferase Associated with Tumor and Determination of Antigenic Epitopes Recognized by Specific Monoclonal Antibodies.** Takao Uejima, Morito Uemura, Shiro Nozawa, and Hisashi Narimatsu.

6164 **Responses to Retinoic Acid of Tamoxifen-sensitive and -resistant Sublines of Human Breast Cancer Cell Line MCF-7.** W. Barkley Butler and Joseph A. Fontana.

6168 **Intrathecal 4-Hydroperoxycyclophosphamide: Neurotoxicity, Cerebrospinal Fluid Pharmacokinetics, and Antitumor Activity in a Rabbit Model of VX2 Leptomeningeal Carcinomatosis.** Peter C. Phillips, Thuy T. Than, Linda C. Cork, John Hilton, Benjamin S. Carson, O. Michael Colvin, and Louise B. Grochow.

6175 **Reduced Intracellular Drug Accumulation in the Absence of P-Glycoprotein (*mdr1*) Overexpression in Mitoxantrone-resistant Human MCF-7 Breast Cancer Cells.** Masayuki Nakagawa, Erasmus Schneider, Katharine H. Dixon, Julie Horton, Kristin Kelley, Charles Morrow, and Kenneth H. Cowan.

6182 **Colocalization of Basal and Luminal Cell-type Cytokeratins in Human Prostate Cancer.** Anja P. M. Verhagen, Frans C. S. Ramaekers, Tilly W. Aalders, H. Ewout Schaafsma, Frans M. J. Debruyne, and Jack A. Schalken.

6188 **Comparison of Cellular Accumulation and Cytotoxicity of Cisplatin with That of Tetraplatin and Ammine(dibutyrato)dichloro(cyclohexylamine)platinum(IV) (JM221) in Human Ovarian Carcinoma Cell Lines.** Prakash Mistry, Lloyd R. Kelland, Swee Y. Loh, George Abel, Barry A. Murrer, and Keri R. Harrap.

6194 **Mutation Spectrum of the *p53* Gene in Bone and Soft Tissue Sarcomas.** Junya Toguchida, Toshikazu Yamaguchi, Bruce Ritchie, Roberta L. Beauchamp, Siri H. Dayton, Guillermo E. Herrera, Takao Yamamuro, Yoshihiko Kotoura, Masao S. Sasaki, John B. Little, Ralph R. Weichselbaum, Kanji Ishizaki, and David W. Yandell.

6200 **Effects of Genistein on the Growth and Cell Cycle Progression of Normal Human Lymphocytes and Human Leukemic MOLT-4 and HL-60 Cells.** Frank Traganos, Barbara Ardelt, Nadine Halko, Silvia Bruno, and Zbigniew Darzynkiewicz.

6209 **pH in Human Tumor Xenografts and Transplanted Rat Tumors: Effect of Insulin, Inorganic Phosphate, and *m*-Iodobenzylguanidine.** Eckhard Jähde, Thomas Volk, Anita Atema, Lou A. Smets, Karl-Heinz Glusenkamp, and Manfred F. Rajewsky.

6216 **Intra- and Interindividual Variability in Systemic Exposure in Humans to 2-Amino-3,8-dimethylimidazo[4,5-*f*]quinoxaline and 2-Amino-1-methyl-6-phenylimidazo[4,5-*b*]pyridine, Carcinogens Present in Cooked Beef.** Anthony M. Lynch, Mark G. Knize, Alan R. Boobis, Nigel J. Gooderham, Donald S. Davies, and Stephen Murray.

6224 **Clonal Rearrangement of Chromosome Band 6p21 in the Mesenchymal Component of Pulmonary Chondroid Hamartoma.** Jonathan A. Fletcher, Geraldine S. Pinkus, Kevin Donovan, Rizwan Naeem, David J. Sugarbaker, Steven Mentzer, Jack L. Pinkus, and Janina Longtine.

6229 **Retroviral Vector-mediated Lymphokine Gene Transfer into Human Renal Cancer Cells.** Guenther Gastl, Connie L. Finstad, Anna Guarini, George Bosl, Eli Gilboa, Neil H. Bander, and Bernd Gansbacher.

6237 **Cytochrome P-450 3A4 (Nifedipine Oxidase) Is Responsible for the C-oxidative Metabolism of 1-Nitropyrene in Human Liver Microsomal Samples.** Kimberly J. Silvers, Tammy Chazinski, Michael E. McManus, Susan L. Bauer, Frank J. Gonzalez, Harry V. Gelboin, Patrick Maurel, and Paul C. Howard.

6244 **Elevated Uptake of Low Density Lipoproteins by Human Lung Cancer Tissue *in Vivo*.** Sigurd Vitols, Curt Peterson, Olle Larsson, Peter Holm, and Bengt Åberg.

6248 **An Improved Fluorometric Assay for Dosimetry of Benzo(*a*)pyrene Diol-Epoxide-DNA Adducts in Smokers' Lung: Comparisons with Total Bulky Adducts and Aryl Hydrocarbon Hydroxylase Activity.** Kroum Alexandrov, Margarita Rojas, Olivier Geneste, Marcel Castegnaro, Anne-Marie Camus, Stefano Petruzzelli, Carlo Giuntini, and Helmut Bartsch.

6254 **Eradication of Hepatic Metastases of Carcinoma H-59 by Combination Chemoimmunotherapy with Liposomal Muramyl Tripeptide, 5-Fluorouracil, and Leucovorin.** Takayuki Asao, Henry R. Shibata, Gerald Batist, and Pnina Brodt.

6258 **Endogenous Tumor Necrosis Factor Functions as a Resistant Factor against Hyperthermic Cytotoxicity.** Yasushi Tsuji, Naoki Watanabe, Tetsuro Okamoto, Naoki Tsuji, Hiroyoshi Sasaki, Shinichiro Akiyama, Naofumi Yamauchi, and Yoshiro Niitsu.

6263 **Membrane Lipid Modification and Sensitivity of Leukemic Cells to the Thioether Lipid Analogue BM 41.440.** Eric S. Petersen, Eric E. Kelley, Edward J. Modest, and C. Patrick Burns.

6270 **Potentiation of the Activity of 1-β-D-Arabinofuranosylcytosine by the Protein Kinase C Activator Bryostatin 1 in HL-60 Cells: Association with Enhanced Fragmentation of Mature DNA.** Steven Grant, W. David Jarvis, Paul S. Swerdlow, Amy J. Turner, Rebecca S. Traylor, Hugh J. Wallace, Peck-Sun Lin, George R. Pettit, and David A. Gewirtz.

6279 **Renal Cell Carcinoma and Natural Killer Cells: Studies in a Novel Rat Model *in Vitro* and *in Vivo*.** Billie K. Winter, Shuo Wu, Alan C. Nelson, and Sylvia B. Pollack.

6287 **Prolonged Survival of Thymoma-bearing Mice after Vaccination with a Soluble Protein Antigen Entrapped in Liposomes: A Model Study.** Fan Zhou, Barry T. Rouse, and Leaf Huang.

6292 **Tumors Arising in SCID Mice Share Enhanced Radiation Sensitivity of SCID Normal Tissues.** Wilfried Budach, Alan Hartford, Danielle Gioioso, Jill Freeman, Alphonse Taghian, and Herman D. Suit.

6297 **Changes in Growth and Tumorigenicity following Reconstitution of Retinoblastoma Gene Function in Various Human Cancer Cell Types by Microcell Transfer of Chromosome 13.** Ashutosh Banerjee, Hong-Ji Xu, Shi-Xue Hu, Diana Araujo, Rei Takahashi, Eric J. Stanbridge, and William F. Benedict.

6305 **Chrysotile Fiber Is a Strong Mutagen in Mammalian Cells.** Tom K. Hei, Chang Q. Piao, Zhu Y. He, Diane Vannais, and Charles A. Waldren.

6310 **Selective Inhibition of Tumor Cell Growth by a Recombinant Single-Chain Antibody-Toxin Specific for the erbB-2 Receptor.** Winfried Wels, Ina-Maria Harwerth, Marcel Mueller, Bernd Groner, and Nancy E. Hynes.

6318 **Identification of a Novel CD56$^+$ Lymphokine-activated Killer Cell Precursor in Cancer Patients Receiving Recombinant Interleukin 2.** R. Scott McKenzie, Patricia E. Simms, Barbara A. Helfrich, Richard I. Fisher, and Thomas M. Ellis.

6323 **Local Administration of Monoclonal Antibody-Drug Conjugate: A New Strategy to Reduce the Local Recurrence of Colorectal Cancer.** Kazuya Kitamura, Toshio Takahashi, Tatsuya Kotani, Takuya Miyagaki, Nobuki Yamaoka, Hiroshi Tsurumi, Akinori Noguchi, and Toshiharu Yamaguchi.

6329 **Evidence That a Novel Human Differentiation-inhibiting Protein Blocks the Dimethyl Sulfoxide-induced Differentiation of Erythroleukemia Cells by Inhibiting the Activation of Membrane Protein Kinase C.** Jon P. Durkin, Balu Chakravarthy, Roger Tremblay, Herve Jouishomme, James F. Whitfield, Jean-Michel Biquard, and Valibor Krsmanovic.

6335 **Myelopoiesis-associated Immune Suppressor Cells in Mice Bearing Metastatic Lewis Lung Carcinoma Tumors: γ Interferon plus Tumor Necrosis Factor α Synergistically Reduces Immune Suppressor and Tumor Growth-promoting Activities of Bone Marrow Cells and Diminishes Tumor Recurrence and Metastasis.** M. Rita I. Young and Mark A. Wright.

6341 **Lipophilic Cisplatin Analogues Entrapped in Lipsomes: Role of Intraliposomal Drug Activation in Biological Activity.** Roman Perez-Soler and Abdul R. Khokhar.

6348 **Intrinsic Radiosensitivity of Normal Human Fibroblasts and Lymphocytes after High- and Low-Dose-Rate Irradiation.** Fady B. Geara, Lester J. Peters, K. Kian Ang, Jennifer L. Wike, Susan S. Sivon, Roland Guttenberger, David L. Callender, Edmond P. Malaise, and William A. Brock.

6353 ***In Vivo* Effects of High-Intensity Ultrasound on Prostatic Adenocarcinoma Dunning R3327.** J. Y. Chapelon, J. Margonari, F. Vernier, F. Gorry, R. Ecochard, and A. Gelet.

6358 ***p53* Gene Mutation Spectrum in Hepatocellular Carcinoma.** Tatsuya Oda, Hitoshi Tsuda, Aldo Scarpa, Michiie Sakamoto, and Setsuo Hirohashi.

6365 **Effects of Differentiating Agents on Cell Surface Expression of the Breast Carcinoma-associated DF3-P Epitope.** Lucien Perey, Daniel F. Hayes, and Donald Kufe.

6371 **Interstitial Hypertension in Human Breast and Colorectal Tumors.** Joanne R. Less, Mitchell C. Posner, Yves Boucher, Dennis Borochovitz, Norman Wolmark, and Rakesh K. Jain.

ADVANCES IN BRIEF

6375 **Binding of Human Single-Stranded DNA Binding Protein to DNA Damaged by the Anticancer Drug *cis*-Diamminedichloroplatinum (II).** Carol K. Clugston, Karen McLaughlin, Mark K. Kenny, and Robert Brown.

6380 **The Immune Response to p53 in Breast Cancer Patients Is Directed against Immunodominant Epitopes Unrelated to the Mutational Hot Spot.** Beata Schlichtholz, Yann Legros, Daniel Gillet, Claire Gaillard, Michel Marty, David Lane, Fabien Calvo, and Thierry Soussi.

6385 **Structural Requirements of Simple Organic Cations for Recognition by Multidrug-resistant Cells.** Marc Dellinger, Berton C. Pressman, Cesar Calderon-Higginson, Niramol Savaraj, Haim Tapiero, Despina Kolonias, and Theodore J. Lampidis.

6390 **Mutations in the *p53* Gene in Radiation-sensitive and -resistant Human Squamous Carcinoma Cells.** Mira Jung, Vicente Notario, and Anatoly Dritschilo.

6394 **Induction of Sister Chromatid Exchanges by Extremely Low Doses of α-Particles.** Hatsumi Nagasawa and John B. Little.

6397 **Accessibility to DNA in Carcinoma Chromatin Is Promoted by Nanomolar Okadaic Acid: Effect on AT-Rich DNA Binding Proteins.** Mary Strasberg Rieber and Manuel Rieber.

6400 **Carcinogen-specific Mutational Pattern in the *p53* Gene in Ultraviolet B Radiation-induced Squamous Cell Carcinomas of Mouse Skin.** Stefan Kress, Christian Sutter, Paul T. Strickland, Hasan Mukhtar, Jurgen Schweizer, and Michael Schwarz.

6404 **A Comparison of Human O^6-Methylguanine-DNA Methyltransferase Promoter Activity in Mer$^+$ and Mer$^-$ Cells.** Linda C. Harris, Philip M. Potter, Joanna S. Remack, and Thomas P. Brent.

6407 **Molecular Cloning of Rat Wilms' Tumor Complementary DNA and a Study of Messenger RNA Expression in the Urogenital System and the Brain.** Prem Mohini Sharma, Ximing Yang, Marianne Bowman, Veronica Roberts, and Saraswati Sukumar.

6413 **Differential Metabolic Patterns of Iodinated *versus* Radiometal Chelated Anticarcinoma Single-Chain Fv Molecules.** Margaret E. Schott, Diane E. Milenic, Takashi Yokota, Marc Whitlow, James F. Wood, William A. Fordyce, Roberta C. Cheng, and Jeffrey Schlom.

6418 **Announcements**
Eighty-Fourth Annual Meeting of the AACR
New Format for Annual Meetings of the AACR Beginning in 1994
AACR Special Conferences in Cancer Research
Calendar of Events

6421 **Author Index**

6422 **Statement of Ownership, Management and Circulation**

December 1, Number 23

6423 **Intracellular Localization of Human DNA Repair Enzyme Methylguanine-DNA Methyltransferase by Antibodies and Its Importance.** Teck Choon Ayi, Kean Chong Loh, Rahmen B. Ali, and Benjamin F. L. Li.

6431 **Monoclonal Antibodies to the Myogenic Regulatory Protein MyoD1: Epitope Mapping and Diagnostic Utility.** Peter Dias, David M. Parham, David N. Shapiro, Stephen J. Tapscott, and Peter J. Houghton.

6440 **Modulation of Subcellular Distribution of Doxorubicin in Multidrug-resistant P388/ADR Mouse Leukemia Cells by the Chemosensitizer {{2-Isopropyl-1-{4-[3-*N*-methyl-*N*-(3,4-dimethoxy-β-phenethyl)amino]propyloxy}benzenesulfonyl}}indolizine.** Jean-Pierre Jaffrézou, Thierry Levade, Pierre Chatelain, and Guy Laurent.

6447 **Inhibition of Cellular Proliferation by Peptide Analogues of Insulin-like Growth Factor I.** Zbigniew Pietrzkowski, Dorothee Wernicke, Pierluigi Porcu, Bradford A. Jameson, and Renato Baserga.

6452 **Effects of Cancer Immunotherapy with Indomethacin and Interleukin-2 on Murine Hemopoietic Stem Cells.** Mary Nel Saarloos, Nelson K. S. Khoo, and Peeyush K. Lala.

6463 **Tumor-associated *M*$_r$ 34,000 and *M*$_r$ 32,000 Membrane Glycoproteins That Are Serine Phosphorylated Specifically in Bovine Leukemia Virus-induced Lymphosarcoma Cells.** Yoko Aida, Kosuke Okada, Masahiro Ohtsuka, and Hiroshi Amanuma.

6471 **Expression of the Endogenous O^6-Methylguanine-DNA-methyltransferase Protects Chinese Hamster Ovary Cells from Spontaneous G:C to A:T Transitions.** Gabriele Aquilina, Renato Biondo, Eugenia Dogliotti, Mark Meuth, and Margherita Bignami.

6476 **Therapy with Unlabeled and ^{131}I-labeled Pan B-Cell Monoclonal Antibodies in Nude Mice Bearing Raji Burkitt's Lymphoma Xenografts.** Donald J. Buchsbaum, Richard L. Wahl, Daniel P. Normolle, and Mark S. Kaminski.

6482 **Antitumor Effect of Interferon plus Cyclosporine A following Chemotherapy for Disseminated Melanoma.** Bishan S. Charak, Rita Marie Sadowski, and Amitabha Mazumder.

6487 **Tumorigenic Suppression of a Human Cutaneous Squamous Cell Carcinoma Cell Line in the Nude Mouse Skin Graft Assay.** Kathleen Conway, David Morgan, Karen K. Phillips, Stuart H. Yuspa, and Bernard E. Weissman.

6496 **A Retrovirus in Chinook Salmon (*Oncorhynchus tshawytscha*) with Plasmacytoid Leukemia and Evidence for the Etiology of the Disease.** W. D. Eaton and M. L. Kent.

6501 **Inhibition by 5-Fluorouracil of *cis*-Diamminedichloroplatinum-(II)-induced DNA Interstrand Cross-Link Removal in a HST-1 Human Squamous Carcinoma Cell Line.** Taito Esaki, Shuji Nakano, Takashi Tatsumoto, Mika Kuroki-Migita, Kenji Mitsugi, Minoru Nakamura, and Yoshiyuki Niho.

6507 **T-Cell Subset Analysis of Lewis Lung Carcinoma Tumor Rejection: Heterogeneity of Effectors and Evidence for Negative Regulatory Lymphocytes Correlating with Metastasis.** Cohava Gelber, Lea Eisenbach, Michael Feldman, and Robert S. Goodenow.

6516 **Expression and CpG Methylation of the Insulin-like Growth Factor II Gene in Human Smooth Muscle Tumors.** Ton Gloudemans, Ina Pospiech, Leo T. M. Van Der Ven, Cornelis J. M. Lips, Hélène Schneid, Willem Den Otter, and John S. Sussenbach.

CONTENTS OF VOLUME 52

6522 **Induction of *c-fos* Gene Expression by Exposure to a Static Magnetic Field in HeLaS3 Cells.** Masahiro Hiraoka, Junji Miyakoshi, Yu P. Li, Bokshil Shung, Hiraku Takebe, and Mitsuyuki Abe.

6525 **Loss of Heterozygosity Involves Multiple Tumor Suppressor Genes in Human Esophageal Cancers.** Ying Huang, Robert F. Boynton, Patricia L. Blount, Richard J. Silverstein, Jing Yin, Yi Tong, Timothy K. McDaniel, Carnell Newkirk, James H. Resau, Rajeshwari Sridhara, Brian J. Reid, and Stephen J. Meltzer.

6531 **Pregnancy-dependent to Ovarian-independent Progression in Mammary Tumors Delineated in Primary Culture: Changes in Signal Transduction, Growth Factor Regulation, and Matrix Interaction.** Walter Imagawa, Gautam K. Bandyopadhyay, Martha Garcia, Akio Matsuzawa, and Satyabrata Nandi.

6539 **Estrogenic Potential of Progestins in Oral Contraceptives to Stimulate Human Breast Cancer Cell Proliferation.** Mei-Huey Jeng, Christopher J. Parker, and V. Craig Jordan.

6547 **Mapping Chromosomal Breakpoints of Burkitt's t(8;14) Translocations Far Upstream of *c-myc*.** Stefan Joos, Frank G. Haluska, Martin H. Falk, Berthold Henglein, Horst Hameister, Carlo M. Croce, and Georg W. Bornkamm.

6553 **Angiogenesis, Microvascular Architecture, Microhemodynamics, and Interstitial Fluid Pressure during Early Growth of Human Adenocarcinoma LS174T in SCID Mice.** Michael Leunig, Fan Yuan, Michael D. Menger, Yves Boucher, Alwin E. Goetz, Konrad Messmer, and Rakesh K. Jain.

6561 **HLA Association with Response and Toxicity in Melanoma Patients Treated with Interleukin 2-based Immunotherapy.** Francesco M. Marincola, David Venzon, Donald White, Joshua T. Rubin, Michael T. Lotze, Toni B. Simonis, Jaikrishna Balkissoon, Steven A. Rosenberg, and David R. Parkinson.

6567 **Comparison of Mouse and Human Colon Tumors with Regard to Phase I and Phase II Drug-metabolizing Enzyme Systems.** Liliane Massaad, Isabelle de Waziers, Vincent Ribrag, François Janot, Philippe H. Beaune, Jackie Morizet, Alain Gouyette, and Guy G. Chabot.

6576 ***Ex Vivo* Differentiation Therapy as a Method of Leukemic Cell Purging in Murine Bone Marrow Expansion Cultures.** Marcus O. Muench, Ziba Guy, and Malcolm A. S. Moore.

6583 **Potent Preventive Action of α-Carotene against Carcinogenesis: Spontaneous Liver Carcinogenesis and Promoting Stage of Lung and Skin Carcinogenesis in Mice Are Suppressed More Effectively by α-Carotene Than by β-Carotene.** Michiaki Murakoshi, Hoyoku Nishino, Yoshiko Satomi, Junko Takayasu, Teiko Hasegawa, Harukuni Tokuda, Akio Iwashima, Junichi Okuzumi, Hidetoshi Okabe, Hirokazu Kitano, and Ryozo Iwasaki.

6588 **Frequent *p53* Gene Mutations in Blast Crisis of Chronic Myelogenous Leukemia, Especially in Myeloid Crisis Harboring Loss of a Chromosome 17p.** Hiroyuki Nakai, Shinichi Misawa, Junya Toguchida, David W. Yandell, and Kanji Ishizaki.

6594 **Clonal Analysis of Human Breast Cancer by Means of the Polymerase Chain Reaction.** Shinzaburo Noguchi, Kazuyoshi Motomura, Hideo Inaji, Shingi Imaoka, and Hiroki Koyama.

6598 **T-Cell Receptor β Chain Gene Rearrangement in Acute Myeloid Leukemia Always Occurs at the Allele That Contains the Undermethylated Jβ1 Region.** Junko H. Ohyashiki, Kazuma Ohyashiki, Ken Kawakubo, Tetsuzo Tauchi, Shinpei Nakazawa, Nobuhiro Kimura, and Keisuke Toyama.

6603 **Loss of Keratin Expression in Anaplastic Carcinoma Cells Due to Posttranscriptional Down-Regulation Acting in *trans*.** M. L. Paine, J. R. Gibbins, K. E. Chew, A. Demetriou, and R. F. Kefford.

6612 **Human Glucocorticoid Receptor Gene Deletion following Exposure to Cancer Chemotherapeutic Drugs and Chemical Mutagens.** Lisa A. Palmer, Bharati Hukku, and Jeffrey M. Harmon.

6619 **Phase I Clinical and Pharmacological Study of Chloroquinoxaline Sulfonamide.** James R. Rigas, William P. Tong, Mark G. Kris, John P. Orazem, Charles W. Young, and Raymond P. Warrell, Jr.

6624 **Transcriptional Repression of the *neu* Protooncogene by Estrogen Stimulated Estrogen Receptor.** Kerry Strong Russell and Mien-Chie Hung.

6630 **Sensitivity of Resistant Human Tumor Cell Lines to Tumor Necrosis Factor and Adriamycin Used in Combination: Correlation between Down-Regulation of Tumor Necrosis Factor-Messenger RNA Induction and Overcoming Resistance.** Jeffrey Taylor Safrit and Benjamin Bonavida.

6638 **Polyethylene-Glycol-mediated Delivery of Liposome-entrapped Pigments into Fibroblasts: Experimental Pigment Cells as Models for Mutator Phenotypes.** Stefan Schmitz, Theresa M. Allen, and Kowichi Jimbow.

6646 **Deletion of Chromosome 11p13-11p15.5 Sequences in Invasive Human Ovarian Cancer Is a Subclonal Progression Factor.** B. Vandamme, W. Lissens, K. Amfo, P. De Sutter, C. Bourgain, E. Vamos, and J. De Greve.

6653 **Reduction of Systemic Exposure and Toxicity of Cisplatin by Encapsulation in Poly-lactide-co-glycolide.** Ruud Verrijk, Ingrid J. H. Smolders, Nel Bosnie, and Adrian C. Begg.

6657 **Inhibitory Effect of Green Tea on the Growth of Established Skin Papillomas in Mice.** Zhi Y. Wang, Mou-Tuan Huang, Chi-Tang Ho, Richard Chang, Wei Ma, Thomas Ferraro, Kenneth R. Reuhl, Chung S. Yang, and Allan H. Conney.

6666 **Effect of Buthionine Sulfoximine and Ethacrynic Acid on Cytotoxic Activity of Mitomycin C Analogues BMY 25282 and BMY 25067.** Bing H. Xu and Shivendra V. Singh.

6671 **Elevated Expression of the Ornithine Decarboxylase Gene in Human Esophageal Cancer.** Masami Yoshida, Haruyuki Hayashi, Masanori Taira, and Kaichi Isono.

6676 **Quercetin Arrests Human Leukemic T-Cells in Late G_1 Phase of the Cell Cycle.** Mitsunori Yoshida, Masuji Yamamoto, and Toshio Nikaido.

6682 **Fibroblasts Transformed by Different *ras* Oncogenes Show Dissimilar Patterns of Protease Gene Expression and Regulation.** Jian-Yi Zhang and Richard M. Schultz.

ADVANCES IN BRIEF

6690 **Identification of the Eleventh Complementation Group of UV-sensitive Excision Repair-defective Rodent Mutants.** Roberta Riboni, Elena Botta, Miria Stefanini, Masayuki Numata, and Akira Yasui.

6692 **A New Functional Role for P-Glycoprotein: Efflux Pump for Benzo(a)pyrene in Human Breast Cancer MCF-7 Cells.** Grace Chao Yeh, Joanna Lopaczynska, C. M. Poore, and James M. Phang.

6696 **Frequent Somatic Mutations of the *APC* Gene in Human Pancreatic Cancer.** Akira Horii, Shuichi Nakatsuru, Yasuo Miyoshi, Shigetoshi Ichii, Hiroki Nagase, Hiroshi Ando, Akio Yanagisawa, Eiju Tsuchiya, Yo Kato, and Yusuke Nakamura.

6699 **Urinary Excretion of O^6-Butylguanine after the Administration of *N*-Nitroso-*N*-butylurea in Rats.** Luisa Airoldi, Alessandra Galli, Cinzia Magagnotti, Renzo Bagnati, Marco Lolli, and Roberto Fanelli.

6702 **Antiangiogenic Agents Potentiate Cytotoxic Cancer Therapies against Primary and Metastatic Disease.** Beverly A. Teicher, Enrique Alvarez Sotomayor, and Zhen Dong Huang.

6705 **Analysis of a Metastasizing Testicular Mixed Gonadal Stromal Tumor with Osteosarcoma Components Suggests That a Malignant Tumor with the Histology of Osteosarcoma May Develop without Primary Involvement of *RB1* and *TP53*.** Peter T. W. Reuvekamp, Rein P. Stulp, Heimen Schraffordt Koops, J. Wolter Oosterhuis, Hans Scheffer, and Charles H. C. M. Buys.

6708 **Cellular Localization of the Folate Receptor: Potential Role in Drug Toxicity and Folate Homeostasis.** Steven D. Weitman, Arthur G. Weinberg, Leslie R. Coney, Vincent R. Zurawski, Debra S. Jennings, and Barton A. Kamen.

6712 **Cytochrome P450IIE1 Genetic Polymorphisms, Racial Variation, and Lung Cancer Risk.** Shunji Kato, Peter G. Shields, Neil E. Caporaso, Robert N. Hoover, Benjamin F. Trump, Haruhiko Sugimura, Ainsley Weston, and Curtis C. Harris.

6716 **Evidence for the Involvement of a Potential Second Tumor Suppressor Gene on Chromosome 17 Distinct from *p53* in Malignant Astrocytomas.** Abha Saxena, W. Craig Clark, James T. Robertson, Barbara Ikejiri, Edward H. Oldfield, and Iqbal Unnisa Ali.

6722 **Announcements**
Eighty-Fourth Annual Meeting of the AACR
New Format for Annual Meetings of the AACR Beginning in 1994
AACR Special Conferences in Cancer Research
Recent Deaths
Calendar of Events

6725 **Employment Register of the AACR**

6733 **Author Index**

December 15, Number 24

SPECIAL LECTURE

6735 **Human Gastric Carcinogenesis: A Multistep and Multifactorial Process—First American Cancer Society Award Lecture on Cancer Epidemiology and Prevention.** Pelayo Correa.

6741 **Down-Regulation of c-MYC Antigen Expression in Lymphocytes of Eμ-*c-myc* Transgenic Mice Treated with Anti-*c-myc* DNA Methylphosphonates.** Eric Wickstrom, Thomas A. Bacon, and Erica L. Wickstrom.

6746 **Phase I and Pharmacokinetic Study of the Novel Platinum Analogue CI-973 on a 5-Daily Dose Schedule.** Peter J. O'Dwyer, Gary R. Hudes, Judy Walczak, Russell Schilder, Frank LaCreta, Barbara Rogers, Ira Cohen, Charles Kowal, Lloyd Whitfield, and Rebecca A. Boyd.

6754 **Invasion of Connective Tissue by Human Carcinoma Cell Lines: Requirement for Urokinase, Urokinase Receptor, and Interstitial Collagenase.** Liliana Ossowski.

6761 **Biological and Immunological Features of Humanized M195 (Anti-CD33) Monoclonal Antibodies.** Philip C. Caron, Man Sung Co, Marcia K. Bull, Nevenka M. Avdalovic, Cary Queen, and David A. Scheinberg.

6768 **High Molecular Weight Transforming Growth Factor β Is Excreted in the Urine in Active Nodular Sclerosing Hodgkin's Disease.** Samuel R. Newcom and Krishna K. Tagra.

6774 **Pharmacokinetics and Therapeutics of Sterically Stabilized Liposomes in Mice Bearing C-26 Colon Carcinoma.** Shi Kun Huang, Eric Mayhew, Syed Gilani, Danilo D. Lasic, Frank J. Martin, and Demetrios Papahadjopoulos.

6782 **α-Difluoromethylornithine Alters Calcium Signaling in Platelet-derived Growth Factor-stimulated A172 Brain Tumor Cells in Culture.** Burt G. Feuerstein, János Szollósi, Hirak S. Basu, and Laurence J. Marton.

6790 **Modulation of Cisplatin Resistance in Human Malignant Melanoma Cells.** Edward F. McClay, Kathleen D. Albright, Jeffrey A. Jones, Alan Eastman, Randolph Christen, and Stephen B. Howell.

6797 **Resistance of Murine Lung Tumors to Xenobiotic-induced Cytotoxicity.** P. Gek Forkert, Andrew Parkinson, Larry G. Thaete, and Alvin M. Malkinson.

6804 **Allelic Loss from Chromosome 11 in Parathyroid Tumors.** Eitan Friedman, Luiz De Marco, Pablo V. Gejman, Jeffrey A. Norton, Allen E. Bale, Gerald D. Aurbach, Allen M. Spiegel, and Stephen J. Marx.

6810 **Clonal Growth of Hepatitis B Virus-integrated Hepatocytes in Cirrhotic Liver Nodules.** Hideaki Yasui, Okio Hino, Keiko Ohtake, Rikuo Machinami, and Tomoyuki Kitagawa.

6815 **Lower Heat Shock Factor Activation and Binding and Faster Rate of HSP-70A Messenger RNA Turnover in Heat Sensitive Human Leukemias.** Nahid F. Mivechi, Honghai Ouyang, and George M. Hahn.

6823 **Histogenetic Analysis of Ovarian Germ Cell Tumors by DNA Fingerprinting.** Masaki Inoue, Masami Fujita, Chihiro Azuma, Fumitaka Saji, and Osamu Tanizawa.

6827 **Effects of Ketoconazole on the Proliferation and Cell Cycle of Human Cancer Cell Lines.** Marie-Elisabeth Forgue-Lafitte, Anne-Marie Coudray, Dominique Fagot, and Jan Mester.

6832 ***In Vitro* Cytotoxic Targeting by Human Mononuclear Cells and Bispecific Antibody 2B1, Recognizing *c-erbB*-2 Protooncogene Product and $Fc\gamma$ Receptor III.** Sylvia T. Hsieh-Ma, Audrey M. Eaton, Tim Shi, and David B. Ring.

6840 **Isolation and Characterization of a Highly Malignant Variant of the SW480 Human Colon Cancer Cell Line.** Naohiro Tomita, Wei Jiang, Hanina Hibshoosh, Dorothy Warburton, Scott M. Kahn, and I. Bernard Weinstein.

6848 **Tamoxifen Stimulates Human Papillomavirus Type 16 Gene Expression and Cell Proliferation in a Cervical Cancer Cell Line.** Jin-Yun Hwang, Bi-Yu Lin, Fen-Mei Tang, and Winston C. Y. Yu.

6853 **Overexpression of Metallothionein in Chinese Hamster Ovary Cells and Its Effect on Nitrogen Mustard-induced Cytotoxicity: Role of Gene-specific Damage and Repair.** Karsten Wassermann, Miroslav Pirisel, and Vilhelm A. Bohr.

6860 **Identification of a Protein Factor Secreted by 3T3-L1 Preadipocytes Inhibitory for the Human MCF-7 Breast Cancer Cell Line.** Patrick G. Johnston, Christina M. Rondinone, Donna Voeller, and Carmen J. Allegra.

6866 **Inability of Leucovorin to Rescue a Naturally Methotrexate-resistant Human Soft Tissue Sarcoma Cell Line from Trimetrexate Cytotoxicity.** Wei-Wei Li and Joseph R. Bertino.

6871 **Developmental Regulation of Annexin II (Lipocortin 2) in Human Brain and Expression in High Grade Glioma.** Steven A. Reeves, Cindy Chavez-Kappel, Richard Davis, Mark Rosenblum, and Mark A. Israel.

6877 **Regulation of Smooth Muscle α-Actin Promoter in *ras*-transformed Cells: Usefulness for Setting Up Reporter Gene-based Assay System for Drug Screening.** C. Chandra Kumar, Pierre Bushel, Sheela Mohan-Peterson, and Fernando Ramirez.

6885 **Relationship of Cellular Glutathione to the Cytotoxicity and Resistance of Seven Platinum Compounds.** Coby Meijer, Nanno H. Mulder, Hetty Timmer-Bosscha, Wim J. Sluiter, Gert Jan Meersma, and Elisabeth G. E. de Vries.

6890 **Inhibition of 12-*O*-Tetradecanoylphorbol-13-acetate-caused Tumor Promotion in 7,12-Dimethylbenz[*a*]anthracene-initiated SENCAR Mouse Skin by a Polyphenolic Fraction Isolated from Green Tea.** Santosh K. Katiyar, Rajesh Agarwal, Gary S. Wood, and Hasan Mukhtar.

6898 **Association of Bovine Papillomavirus Type 2 and Bracken Fern with Bladder Cancer in Cattle.** M. Saveria Campo, William F. H. Jarrett, Ron Barron, Brian W. O'Neil, and Kenneth T. Smith.

CONTENTS OF VOLUME 52

6905 **Novel Expression of Gastrin-(Cholecystokinin-B)-Receptors in Azaserine-induced Rat Pancreatic Carcinoma: Receptor Determination and Characterization.** Weigong Zhou, Stephen P. Povoski, Daniel S. Longnecker, and Richard H. Bell, Jr.

6912 **Modulation of *c-jun* and *jun*-B Messenger RNA and Inhibition of DNA Synthesis by Prostaglandin E_2 in Syrian Hamster Embryo Cells.** Matthew S. Cowlen and Thomas E. Eling.

6917 **Immunogenicity and Safety of a Recombinant Vaccinia Virus Vaccine Expressing the Carcinoembryonic Antigen Gene in a Nonhuman Primate.** J. Kantor, K. Irvine, S. Abrams, P. Snoy, R. Olsen, J. Greiner, H. Kaufman, D. Eggensperger, and J. Schlom.

6926 **Potent and Specific Inhibition of $p60^{v\text{-}src}$ Protein Kinase Both *in Vivo* and *in Vitro* by Radicicol.** Ho Jeong Kwon, Minoru Yoshida, Yasuhisa Fukui, Sueharu Horinouchi, and Teruhiko Beppu.

6931 **Carcinogenicity Studies of Fluoxetine Hydrochloride in Rats and Mice.** Raymond A. Bendele, Elizabeth R. Adams, Wherly P. Hoffman, Christian L. Gries, and Douglas M. Morton.

ADVANCES IN BRIEF

6936 **Enhancement of Xanthine Dehydrogenase Mediated Mitomycin C Metabolism by Dicumarol.** Daniel L. Gustafson and Chris A. Pritsos.

6940 **Expression of the Protooncogene *bcl*-2 in the Prostate and Its Association with Emergence of Androgen-independent Prostate Cancer.** Timothy J. McDonnell, Patricia Troncoso, Shawn M. Brisbay, Christopher Logothetis, Leland W. K. Chung, Jer-Tsong Hsieh, Shi-Ming Tu, and Martin L. Campbell.

6945 **Consistent Disruption of the *AML1* Gene Occurs within a Single Intron in the t(8;21) Chromosomal Translocation.** Kimiko Shimizu, Hiroyuki Miyoshi, Tomoko Kozu, Junko Nagata, Keiichiro Enomoto, Nobuo Maseki, Yasuhiko Kaneko, and Misao Ohki.

6949 **Immunohistochemical Staining for Transforming Growth Factor β_1 Associates with Disease Progression in Human Breast Cancer.** Stefan M. Gorsch, Vincent A. Memoli, Thérèse A. Stukel, Leslie I. Gold, and Bradley A. Arrick.

6953 **Disruption of Mitochondrial Function by Suramin Measured by Rhodamine 123 Retention and Oxygen Consumption in Intact DU145 Prostate Carcinoma Cells.** Randall P. Rago, Peter C. Brazy, and George Wilding.

6956 **Growth Suppression Mediated by Transfection of p53 in Hut292DM Human Lung Cancer Cells Expressing Endogenous Wild-Type p53 Protein.** Jean-François Cajot, Michael J. Anderson, Teresa A. Lehman, Harris Shapiro, Alicia A. Briggs, and Eric J. Stanbridge.

6961 **Expression and Regulation of the Leukemia Inhibitory Factor/D Factor Gene in Human T-Cell Leukemia Virus Type 1 Infected T-Cell Lines.** Tomoyo Umemiya-Okada, Toshiki Natazuka, Toshimitsu Matsui, Mitsuhiro Ito, Taizo Taniguchi, and Yoshinobu Nakao.

6966 **Differential Display and Cloning of Messenger RNAs from Human Breast Cancer *versus* Mammary Epithelial Cells.** Peng Liang, Lidia Averboukh, Khandan Keyomarsi, Ruth Sager, and Arthur B. Pardee.

6969 **Expression and Functional Activity of P-Glycoprotein in Cultured Cerebral Capillary Endothelial Cells.** Erik J. Hegmann, H. C. Bauer, and Robert S. Kerbel.

6976 **A Functional Screen for Germ Line *p53* Mutations Based on Transcriptional Activation.** Thierry Frebourg, Noële Barbier, Jayne Kassel, Yin-Shan Ng, Peggy Romero, and Stephen H. Friend.

6979 **Lack of T-Cell Immunity in Humans with Preexisting Anti-Mouse Immunoglobulin Reactivity.** Robert M. Conry, M. B. Khazaeli, and Albert F. LoBuglio.

LETTER TO THE EDITOR

6983 **Correspondence re: S. M. Bronstein *et al.* Efficient Repair of O^4-Ethylguanine, but not O^4-Ethylthymine or O^2-Ethylthymine, Is Dependent upon O^6-Alkylguanine-DNA Alkyltransferase and Nucleotide Excision Repair Activities in Human Cells. Cancer Res., *52*: 2008–2011, 1992.** Victor S. Goldmacher. Reply by S. Maynard Bronstein, Thomas R. Skopek, and James A. Swenberg.

6986 **Announcements**
Eighty-Fourth Annual Meeting of the AACR
New Format for Annual Meetings of the AACR Beginning in 1994
AACR Special Conferences in Cancer Research
Recent Deaths
Calendar of Events

6989 **Acknowledgment to Reviewers**

6998 **Author Index**

Cover Illustrations for Volume 52

January 1: Her Imperial Highness, Princess Takamatsu, of the Royal Family of Japan, founder of the Princess Takamatsu Cancer Research Fund.

January 15: Logo for the Second Joint Meeting of the American Association for Cancer Research and the Japanese Cancer Association, Honolulu, Hawaii, February 10–14, 1992.

February 1: Hans-Gunter Neumann, Ruggero Montesano, Steven R. Tannenbaum, and Miriam C. Poirier, with the structure of 4-aminobiphenyl-hemoglobin adducts and a graph showing the relationship between the adduct level of hemoglobin and smoking frequency.

February 15: Bernadine P. Healy, Director of the National Institutes of Health.

March 1: Samuel Brown, Jr., Carol Reed Ash, C. Michael Brooks, and John L. Currie, the officers of the American Association for Cancer Education.

March 15: A depiction of a DNA chain to highlight the work of the Human Genome Project, coordinated by James Watson, head of the National Center for Human Genome Research.

April 1: Gianni Bonadonna, Louis Sullivan, and T. C. Hsu, recipients of the 1991 American Cancer Society Medal of Honor.

April 15: Charles M. Baugh, C. L. Krumdieck, and Madhavan G. Nair, with a depiction of the structure of an antifolate poly-γ-glutamate.

May 1: June L. Biedler, Michael M. Gottesman, Elizabeth J. Robertson, Pelayo Correa, and Susan Band Horwitz, winners of the 1992 scientific awards of the American Association for Cancer Research.

May 15: Thomas A. Waldmann, recipient of the 1992 Bristol-Myers Squibb Award for Distinguished Achievement in Cancer Research.

June 1: Cover of *Diet, Life-style and Mortality in China*, a monograph by Chen Junshi, T. Colin Campbell, Li Junyao, and Richard Peto detailing some of the findings of a series of particularly large studies of the effects of environment and behavior on mortality rates in China.

June 15: Judah Folkman, winner of the 1992 Wolf Award in medicine and the 3M Life Sciences Award from the Federation of American Societies for Experimental Biology.

July 1: J. Michael McGinnis, Director of the Office of Disease Prevention and Health Promotion, United States Department of Health and Human Services, with the covers of several recent key publications of the Department of Health and Human Services.

July 15: Charles S. Lieber, Helmut Karl Seitz, and Albert Tuyns, researchers working on defining the links between consumption of alcoholic beverages and cancer.

August 1: A depiction of the accumulation of cyclins during the cell cycle and their abrupt destruction at mitosis.

August 15: Steven A. Rosenberg, Chief of Surgery, National Cancer Institute, developer of techniques to widen the applicability of tumor-infiltrating lymphocytes to cancer treatment.

September 1: Lawrence F. Einhorn, Brian MacMahon, and Christiane Nusslein-Volhard, recipients of the 1992 General Motors Cancer Research Foundation awards.

September 15: Wilfred D. Stein, with graphs illustrating growth models for bladder cancer, multiple myeloma, and stomach cancer and the effect of smoking cessation on lung cancer risk.

October 1: E. L. Kennaway and J. W. Cook, investigators who identified benzo(*a*)pyrene as the carcinogen of major potency in coal tar.

October 15: Richard J. O'Reilly, President, Cleon T. Knapp, Chairman of the Board, and Rebecca R. Kry, Executive Director, of the Cancer Research Fund of the Damon Runyon-Walter Winchell Foundation, and Damon Runyon with Walter Winchell.

November 1: George F. Vande Woude, Editor-in-Chief of *Cell Growth & Differentiation*, the molecular biology journal of the American Association for Cancer Research.

November 15: Lee W. Wattenberg, 1992–1993 President of the American Association for Cancer Research.

December 1: Lloyd W. Law, pioneering researcher in the field of carcinogenesis, whose work led to the development of the L1210 cell line.

December 15: Theodore S. Hauschka, early investigator into the cytogenetics and immunogenetics of cancer who defined cytogenetic parameters in cancer and developmental disorders in mice and humans.